LETTERS DVORAK WISHES HE'D GOT

California's Computer Magazine

MAY 1988 • ISSUE 43

FREE

MicroTimes™

CLONING THE PS/2

Chips And Technologies' Ron Yara On Proprietary Technology And The Diverging PS/2 And AT Standards

SPECIAL MAC @ WORK SECTION: MacWrite 5.0 • MindWrite

PBS' JAMES BURKE: Computers And The Changing Universe

HANDS ON REVIEWS: Quattro • Boeing Calc • Ability Plus

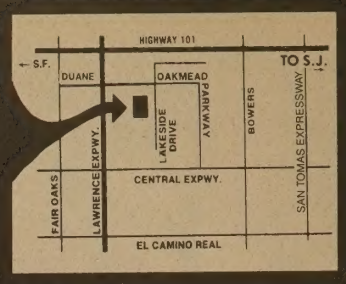
Your Best Buys Are Always At

HOME OF FAST, CONVENIENT, COURTEOUS SERVICE

fry's ELECTRONICS

541 LAKESIDE DRIVE
SUNNYVALE

PHONE:
408/733-1770



Hours
Mon-Fri 8 am-8 pm, Sat 9-6
OPEN EVERY SUNDAY 9-6

BLUE CHIP

pcPopular MONO SYSTEM

- 4.77/10 MHz 8088-2
- 256K RAM Expandable to 640K on Motherboard
- 5¼" 360K Floppy Disk
- Multivideo Board for Hercules Monographics & RGB Color Graphics
- Mono Monitor
- Serial/Parallel/Game Ports
- 2 Button Logitech Mouse

$488

BLUE CHIP

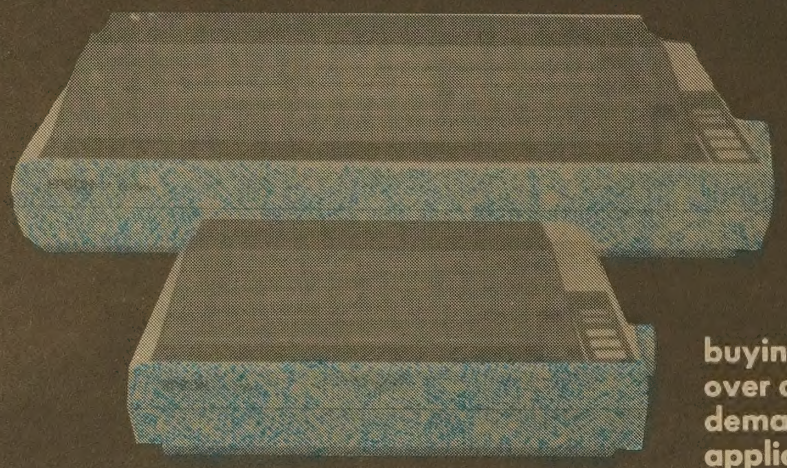
6/8/10 MHz AT MONO SYSTEM

- 512K RAM Expandable to 2 MB on Motherboard
- 5¼" 1.2 MB Floppy Disk
- Hi-Res Monographics
- Mono Monitor
- Serial/Parallel Ports
- Clock/Calendar

$949

Rugged Durability and Lasting Performance

EPSON



Versatility and Compatibility. Epson's exclusive SelecType front control panel lets you select print modes and typestyles with the touch of a button. Standard Pull Tractor handles fanfold paper efficiently, and single sheets load automatically. Epson FX printers are versatile enough for any printing job and are compatible with virtually all personal computers and software on the market.

CALL NOW FOR LOWEST PRICES EVER!

When you buy an Epson FX-86e or FX-286e computer printer, you're buying a printer that's been proven over and over again in the most demanding business printing applications. When you have a heavy-duty workload and you need a printer to match, look to an Epson FX-86e or FX-286e!

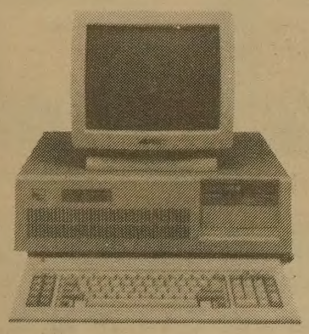
Solid Performance. With a speed of 240 characters per second in high-speed draft mode (12 CPI) and 48 characters per second in Near Letter Quality mode (12 CPI), the FX handles big jobs with efficiency and ease. The narrow-carriage FX-86e is ideal for correspondence and reports, and the wide-carriage FX-286e will crank out spreadsheets and ledger-paper financial reports as well.

WHEN YOU'VE GOT AN EPSON YOU'VE GOT A LOT OF COMPANY

Best Prices - Excellent Service - Quality Products
Will Meet Or Beat Any Advertised Price!

More Savings For You!

10 MHz 0 Wait State AT System



* 512K on 1Meg Mother Board
* 6/10 MHz switchable CPU
* 0 or 1 Wait State selectable
* Built-in Clock calendar w/Battery back-up
* 220 Watt Power Supply
* Monographic Printer Card
* 360K/720K/1.2MB Floppy Controller
* 360K Fujitsu Floppy Drive
* High Resolution Monochrome Monitor
* AT/XT Keyboard
* 48 hrs. Burn-In

$749

21 MHz 386 System
Best Buy on 386's

SPECIAL OF THE MONTH

* 1 Meg Memory on Board
* 2 SR, 1PR, 1 Game Port, Clock/Calendar
* 6/16 MHz CPU (21 MHz - Landmark)
* 250 W Power Supply
* Herc. compatible Monographic Card w/Printer Port
* 360K, 720K, 1.2MB Floppy Contr.
* 1.2 MB Floppy Drive
* High Resolution Amber Monitor
* AT/XT Keyboard
* 48 hrs. Burn-In

$1799

12 MHz Baby AT

* 512K on 1Meg Mother Board
* 6/12 MHz clock speed
* Built-in Clock Calendar w/Battery back-up
* AWARD BIOS
* 200 Watt Power Supply
* Monographic Printer Card
* Space saving small Baby AT Case
* 360K/720K/1.2MB Floppy Controller
* 360K Fujitsu Floppy Drive
* High Resolution Monochrome Monitor
* AT/XT Keyboard
* 48 hrs. Burn-In

$769

16 MHz AT System
Fastest 286 System ever built

* 512K on 1Meg Mother Board
* 6/12 MHz switchable CPU running equivalent to 16 MHz at 0 Wait State
* PHOENIX BIOS
* Built-in Clock Calendar w/Battery Back-up
* 220 Watt Power Supply
* Monographic Printer Card
* 360K/720K/1.2MB Floppy Controller
* 360K Fujitsu Floppy Drive
* High Resolution Monochrome Monitor
* AT/XT Keyboard
* 48 hrs. Burn-In

$899

Seagate Hard Disk

* 20 MB w/XT Controller & Cable.. $269
* 30 MB w/XT Controller & Cable.. $289
* 40 MB ST 251 ..... $399
* 20 MB ST 4026 fast speed $279

Floppy Drives

* Fujitsu/Teac 360K $72/82
* Fujitsu/Teac 1.2MB $92/102
* Fujitsu 3.5" 720K $110

Monitors

* Samsung Amber w/Tilt & Swivel $72
* Samsung Color RGB $249
* Samsung EGA $379

10 MHz Turbo XT System

* 256K on 640K MB,4.7/10 MHz switchable
* 150 Watt Power Supply
* Monographic Printer Card
* 360K Fujitsu Floppy Drive w/Controller
* High Resolution Monochrome Monitor
* AT Style Keyboard
* 48 hrs. Burn-In

$459

Mother Boards

* 386 8/16 MHz (running at 21 MHz).... $1189
* AT 6/12 0 Wait running at 16 MHz $359
* AT 6/10 0 Wait $299
* AT Baby 6/12 ..... $299
* XT 4/10 MHz $89
* XT 10 MHz w/Disk I/O $129

All Motherboards with 0K

Floppy/Hard Disk Controller

* 2 Dr. Floppy Controller $25
* 2 Dr. AT/XT 360K/720K/1.2MB Fl.Contr. $39
* Hard Disk Contr. for XT $59
* Hard & Floppy Contr. for AT/RLL .. $129/189

Memory Expansion Boards

* **EEMS for XT/AT**, provides up to 2 MB of expanded/extended memory. SW incl. $109
* **EEMS for AT**, provides up to 2 MB of 16-bit expanded or extended memory. Supports DESQview, Framework, Symphony, Lotus 1-2-3, etc. $119

Mouse

* Microsoft and PC-Mouse system compatible $59

Chassis

* XT Slide-In Case $27
* AT Jr. Case $39
* Super Deluxe Baby AT Case w/200 W Power Supply $110
* AT Case $69

Video Cards

* Herc.Comp. CGA/EGA/MGA Autoswitch $139
* Herc. Comp. CGA/EGA/MGA with PrinterPort $159
* Color/Monographic 2 in 1 Card $79
* Monographic Card w/Printer Port $45
* Color Graphic Card w/Printer Port $45

Modems

* 1200 Baud Internal w/software $69
* 1200 Baud External w/software $89
* 2400 Baud Internal w/software $169
* 2400 Baud External w/software $189

DOS

* MS-DOS 3.21 w/GW-Basic $79
* MS-DOS 3.3 w/GW-Basic $99

Keyboards

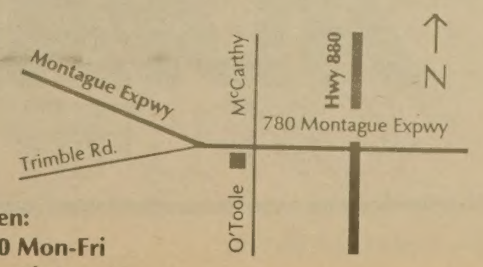
* XT 84 Keys AT Style $45
* XT/AT 84 Keys $49
* XT/AT Enhanced (102 Keys) $65

Ser./Par./Clock/GameCards

* Serial/Parallel/Game Card for AT/XT $49
* RS232 Serial for XT $25
* RS232 + Clock for XT $39
* Clock/Calendar for XT $29
* Game and Clock for XT $36
* No Slot Clock $29
* Multi I/O for XT (provides SR/PR/Game Port, Fl. Contr., Clock/Cal. for XT) $53
* Game Card, 2 Ports for AT/XT $19
* Parallel Printer Card $15

Power Supply

* 150 Watt for XT $55
* 180 Watt for Baby AT $59
* 220 Watt for AT $69



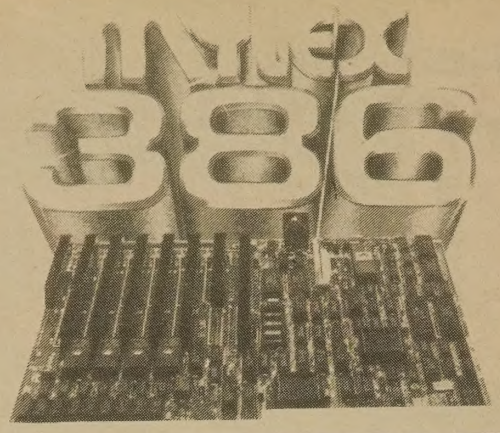
408-432-6277 AMERICAN COMPUTER SYSTEMS

One Year Limited Warranty on all XT/AT Systems, Parts, 90 days Labor.

All Prices reflect 3 1/2 % cash discount. Prices subject to change without notice. Not responsible for typographical errors.

780 Montague Expressway #305
Koll Commerce Center, Bldg. 3
San Jose, CA 95131
Right Next to RYDER TRUCK RENTAL

open:
8:30 - 5:00 Mon-Fri
Sat with Appointment



The 386 Center

The MYLEX 386 System Board!!

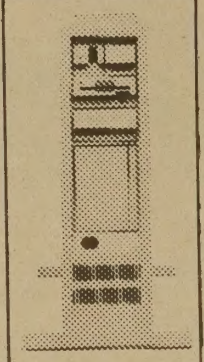
The 386 Board Features:

- Intel 80386 6/16 MHz Keyboard selectable
- 1MB or 4MB of 32 bit RAM on the system board
- 64KB or 32-bit no wait-state CACHE memory
- BIOS by AMI
- 6-16 bit slots & 2-8 bit slots
- Battery backup for Clock/Calendar and Hardware Setup
- Socketed for 80287 6/10 MHz coprocessor
- Norton Rating 23.5
- 1 Year Warranty
- Made in USA

FASTEST 386 IN THE WORLD At This Price CALL

386 CENTER

Mylex Board	LOW
Micronics Board	LOW
Intel Board	LOW
Memory Chips	
Static Column	$7.50
4 MB Board For Compaq 386 +	
Memory	1299



FOR PROFESSIONALS

H.I.M.S. WORKSTATION

386 Computer, 240 MB hard drive, 60 MB tape. Targa board, Forte boards, digitizers, plotters, slides, workstations, laser printers, 700 cps printers, networking, CAD. We set up & install custom configurations

"The HIMS 386 leaves IBM PS/2 Mod. 80, the Compaq 386 & PC Limited 386/16 in the dust" **$Call**

3-user Network Special — **$129/Mo.***

NOVELL

Server/Work Station:
6/8 MHz 286, 12 slots, 238W P/S, S&P Ports, Monitor, 360K Flpy, 1 MbRAM, 44 Mb H.D.
NOVELL Non-Dedicated Netware 286
ARCNET 4-Port Passive Hub
3 ARCNET Cards and Cables up to 100 Feet Each.
2 SUPERturbo XT 640K, 10MHz, 8088-1, 360K Floppy and "AT-Style" Keyboard, "FCC" Approved.
3-Amber Monitors Included.

****A COMPLETE NETWORK****

RETAIL . . . . $9,258 **NOW ONLY $5,388**

*Leasing available to qualified businesses.

CONNECTIVITY

CONSULTATION AND INTEGRATION QUESTIONS??
CALL OUR EXPERT SALES & TECH STAFFS!!
NOVELL ADVANCED NETWARE STARTER KITS AND SERVERS . . . . CALL

WESTERN DIGITAL

StarLan/Novell Starter
1 Star and 2 StarLink Cards
3 25 Foot Cables and NetBios
Novell Advanced Netware 286 v.2.0A
$1,795

ArcNet Starter Kits with Novell Software

NOVELL

Advanced NetWare 286 v.2.0A
3 CompuPro PC Arcnet Cards and Cables
1 CompuPro 4-Port Passive Hub

Complete Kit	$1,978
Above Kit with **4PC**-Arcnet Cards	$2,149
Above Kit with **5PC**-Arcnet Cards and an 8-Port Active Hub	$2,695
Intercontinental Micro Systems-MS-CPS-PC PC/XT **AT Slave CPU Card** and Graphics Terminal with Software to Install in Novell Environment	$1,095
ARCNET Compatible 1/2 Card	$235
ARCNET 8-Port Active Hub	$449
ARCNET 4-Port Active Hub PC/Card	$225
ARCNET 4-Port Passive Hub	$39

PLOTTERS

Calcomp 1041 GT	4,498
1042GT	7,650
1043GT	6,576
1044GT	10,750
Enter FB1000, AD	3,023
GTCO MD-7, 4 button	767
Hewlett-Packard	
7440, 8 pen, A size	986
7475A 6 pen, AB	1,442
7550A, 8 pen, AB	2,970
7570, 8 pen	3,896
7595A, 8 pen, A-E	8,044
7596A, 8 pen, A-E rl.	9,590
Houston Instruments	
PC 695, 4 pen, AB	578
DMP 29, 8 pen, AB	1,653
DMP 41, 1 pen, CD	2,157
DMP 42, 1 pen, CD	2,157
DMP 51, 1 pen, CD	2,877
DMP51MP, 14 p., CD	3,381
DMP52, 1 pen, CD	2,877
DMP 52MP, 14 p. CD	3,381
DMP 56A, 1 pen, A-E	3,957
DMP 56C, 1 pen, A-E	4,101
DMP 61, 1 pen, AD	3,381
DMP 62, 1 pen, AE	4,677
MP 6, 6 pen	647
MP 60, 6 pen	603
DMP 6x buffer	829
Scancad	2,434
Ioline LP3700	3,211
LP3708	3,593
Mitsubishi CHC-65	7,304
Roland DXY 880	1,004
DXY 980	1,238
Versatec	CALL

DIGITIZERS

Calcomp	
12″ x 12″	349
24″ x 36″	3,970
Hitachi	
1111, Tiger w/12 bu.	699
1515 w/12 button	1,395
2222 w/12 button	2,812
2436 w/12 button	3,582
3648 w/12 button	4,401
3648BL w/12 button	6,914
Houston Instruments	
PC PAD	315
DT11AA, 11 x 11, 1 bu.	628
DT114, 11 x 11, 4 bu.	688
TG 1011, 11 x 11, 16 bu.	853
TB 1017, 11 x 17, 16 bu.	884
TG 8011, 11 x 11, 16 bu.	895
TG 8017, 11 x 17, 16 b.	1,526
TG 8024, 18 x 24, 16 b.	2,498
TG 8036, 24 x 36, 16 b.	3,245
Summagraphics	
12″ x 12″	365
24″ x 36″	3,180

High-Resolution Monitors

Amtron	CALL
Conrac 7351	2,709
Control Systems 19/64	2,680
Hitachi CM2073	2,695
Intecolor Megatrend	1,430
Microvitec	CALL
Mitsubishi	
C3922K, LPK	1,881
HG6905BK	2,755
C6922AGK	2,173
C6922LPK, PK	2,211
C8652AK	1,760
C89A8NB	2,720
C9919BK	2,562
C9920BK	2,387
FG6600AK	2,126
NEC Multisync	570
Sony Multiscan	620

ADVANCE COMPUTER SYSTEMS

WALNUT CREEK 1987 N. Main St.
(415) 945-8011

SUNNYVALE 665 Grape Ave.
(408) 732-6200

SAN FRANCISCO 1231 Market St.
(415) 552-2902
Inside San Francisco Hotel main floor Market & 8th Mezz
Not responsible for typographic errors
Subject to stock on hand Prices subject to change

3 LOCATIONS TO SERVE YOU

BEST

✓ BEST BUY
✓ BEST VALUE
✓ BEST SYSTEMS

H.I.M.S. WORKSTATION
MYEX 386 + 60 MB HARD

Mono System $2999
1MB Memory $1250
4 MB Option
19" Monitor + 80387 + Tape Backup
ALL CONFIGURATIONS CALL

MACINTOSH II
80 MB Hard Drive
19" Monitor
Extra Memory
Laser Printer
Lease From **$159** Mo.

SAMSUNG AT
60MB HARD DRIVE
1 MB MEMORY
2 SERIAL + 1 PARALLEL

Monographics System $1699
EGA System Add $399
Laser Printer H.P. $1635

COMPUTERS
Macintosh + ... LOW
Macintosh SE 1935
Macintosh SE (20MB) 2485

IBM All Models
AT (30MB) $3300
PS/2 Mod 25 919
PS/2 Mod 30 1187
PS/2 Mod 60 3375
PS/2 Mod 80 ..... CALL

AST
Lowest Prices

AST 386 Computer ..... LOW
AST 286 40 MB Hard 2300

386 COMPUTERS
HIMS (Mylex) $2295
HIMS Work Station ..... CALL

LAPTOPS
Toshiba 1000 ..... $795
Toshiba 5100 ..... CALL
NEC Multispeed EL 1495
NEC + Hard Drive 2295
Zenith 20 MB ..... CALL

COMPAQ
386-20 MHz ..... LOW
Portable ..... LOW

SAMSUNG
286 + 1 MB Memory $1099
SAMSUNG 600/300 ..... CALL

PRINTERS
(Lowest Prices In The World)

H.P. Laser $1635
Toner 95
AST Laser (P.S.) 3275
NEC Laser (P.S.) 3395
Apple Laser 3495

PRINTERS
(Lowest In Bay Area)

NEC 2200 ..... $334
NEC P6 429
NEC P7 629
Star NX1000 174
Star NP10 154
Epson LQ850 524
Epson LQ800 295
Citizen 120 144
Citizen 180 188
Toshiba 321SL 489
Okidata ALL ..... LOW
HP Desk Jet 790

MODEMS
1200B Internal $69
Hayes 1200 ..... CALL
Everex 1200B 89
2400 BPS 189

GRAPHIC CARDS
AST 6 PK 64K $125
Ast. Prem 256K 189
Ast. Ramp (#266) 375
NEC EGA (GB1) 199
Video 7 Delux 199
Video 7 VGA 289
Quad Prosync w/mouse 219
Quad Ultra VGA w/mouse 319
Genoa Hi Res. Plus 220
Paradise EGA 350 134
Paradise EGA (480) 179
Everex Auto (480) 139
Hercules color 139
Hercules mono Plus 169
Everex The Edge 199
ATI (VIP) VGA 289
ATI EGA Wonder 189
ATI Small Wonder 119

DRIVES
Floppy $75
20 MB 228
40 MB 450
60 MB ..... CALL
80 MB 895
120 MB ..... LOW
380 MB Maxtor ..... CALL
Tape BackUp 398

NETWORKING
Novell Network + X Stations + Printers
Network Your Present Systems/ Computers/Printers At Your Site

FAX MACHINES
Sharp ..... CALL
Brother ..... CALL

MONITORS
Monochrome $89
NEC Multisync 574
Mitsubishi Multiscan 499
Sony 1303 585
Samsung EGA 379
NEC XL 1975

CHIPS
256K ..... CALL
80386-16 ..... CALL
80386-20 ..... CALL
1 MB Chips ..... CALL

SCANNERS/PLOTTERS/ DIGITIZERS
H.I. Plotter ..... CALL
Summa Graphic ..... CALL
Roland ..... CALL
H.P. Plotter ..... CALL

ADVANCE COMPUTER SYSTEMS

3 LOCATIONS TO SERVE YOU

FAX (408) 749-9449

SUNNYVALE 665 GRAPE AVE. **(408) 732-6200**
WALNUT CREEK 1987 N. MAIN ST. **(415) 945-8011**
SAN FRANCISCO 1231 MARKET ST. **(415) 552-2902**
(Inside San Francisco Hotel Mezzanine, Market & 8th)

(A) Prices subject to change
(B) Cash Prices
(C) Financing Available
(D) Not responsible for typo error
(E) Subject to stock on hand
(F) Diskettes in Min. Qty. 50
(G) Prices vary at stores

MAY 1988 ISSUE #43
MICROTIMES

COVER STORY

47
Cloning The PS/2

By Mary Eisenhart and Robert Grant Beauchamp

An interview with Ron Yara of Chips And Technologies, developer of the first chipsets to emulate IBM's proprietary PS/2 technology. Yara talks about legal and technical issues, as well as the apparent evolution of two parallel standards — AT and PS/2.

Ron Yara, vice president of business development at Chips And Technologies talks about the problems—both legal and technical—in cloning the PS/2.

DEPARTMENTS

11 Calendar Of Events

14 News And Analysis
By Paul Hoffman
Look and feel wars rage on.

34 Reviews

148 Buyer's Guide

152 User Group Network

170 Classifieds

172 Index Of Advertisers

174 Dvorak's Last Column
By John C. Dvorak
Letters Dvorak wishes he'd get.

COLUMNS

122 PC Systems
By Ken Milburn
No longer a luxury, state-of-the-art graphics are increasingly indispensable in the corporate world.

126 UNIX
By Bennett Falk
The surprising truth about Polish notation.

128 Telecommunications
By Brock N. Meeks
Electronic privacy: user sues sysop, Office of Technology Assessment issues disturbing report.

132 Macintosh-PC Connectivity
By Robert Beauchamp
Excel and enhancements to make it work even better in two worlds.

136 HyperCard
By Birrell Walsh
Learning to HyperTalk.

140 Amiga
By Matthew Leeds
KS/WB 1.3, the Amiga's new operating system.

144 Atari ST
By David Hawkins
Atari sues Micron — what it's all about.

146 CP/M
By Robert D. Athey Jr.
Back up your hard disk, or live to regret it.

FEATURES

58 New Politics In Silicon Valley
This two-part series focuses on the issues and changing political climate of Silicon Valley. In this month's feature, 12th District Congressional candidate Jim Garrison talks about the issues facing high tech in the global economy.

66 PC Wizardry As Near As Your Modem
By Lenny Bailes
Public domain and shareware utilities to amaze your officemates.

84 James Burke On The Computer Age
By Robert Grant Beauchamp
The quintessential observer of changing universes looks at the world of high tech.

106 Software Tools For Negotiating
By Birrell Walsh
Programs to help you at the bargaining table.

HANDS ON

102 Procomm Plus
By Lenny Bailes
Another shareware classic is now available in an enhanced commercial version.

112 Boeing Calc Version 4
By Steve Guttman
Spreadsheet power and efficiency in three dimensions.

116 Quattro
By Woody Liswood
With a flexible user interface, speedy calculation capability and amazing graphics, Borland's spreadsheet offers better performance than 1-2-3 at a fraction of the cost.

SPECIAL SECTION

Mac @ Work

Featuring Macintosh products for your business needs

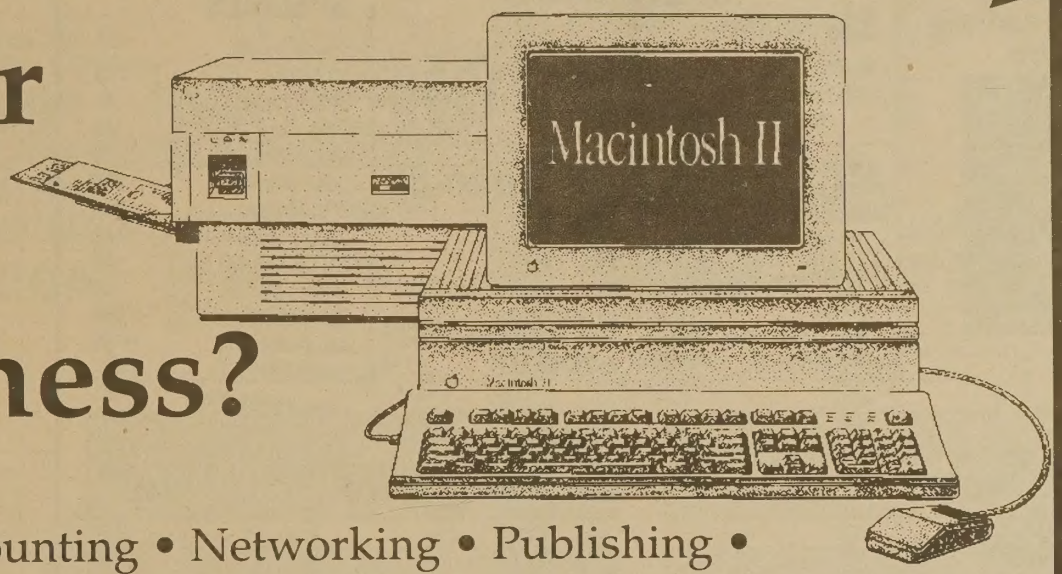
70 MindWrite
By Jim Wolcott
This word processor's outlining capabilities streamline the process of composition.

74 MacWrite 5.0
By Mary Eisenhart
Long awaited, this update of the former Apple classic offers some very useful new enhancements while retaining the program's attractive simplicity. However, it may be too little to late.

80 Macintosh Buyers Guide

What can Macintosh do for Your Business?

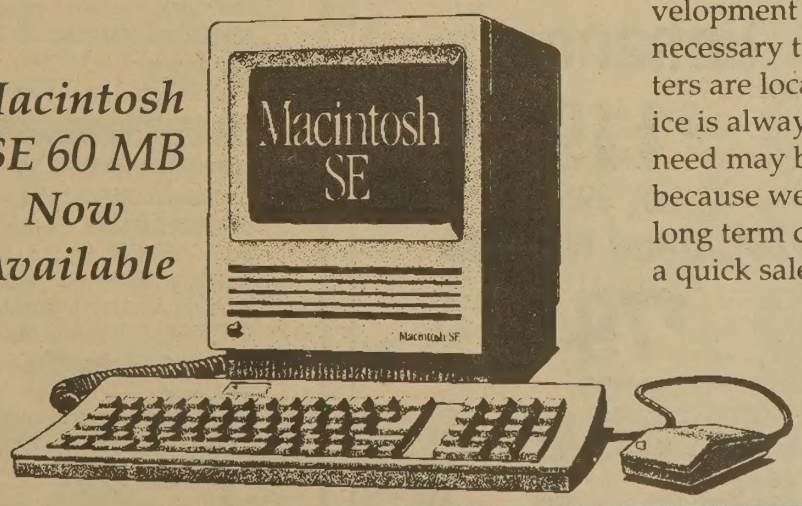
• Communications •
• Presentations •
• Financial Analysis •
• Document Processing •
• Mac to MS Dos •



• CAD • Accounting • Networking • Publishing •

The Best Way to find out is to visit your nearest Computer Attic. Whether you work in a large corporation or out of your own home, Macintosh has something to offer you. Even if you have already made an investment in MS DOS, the technology and products exist today to bridge that gap and allow you to retain that investment while still benefiting from the Macintosh Advantage. Computer Attic's organization is staffed with people who can address your specific needs - Accounting, Publishing, Video Presentations, Networking, Mac-DOS Communications, and General Office Productivity. With hundreds of large-scale and single system installations under our belt, we are prepared to successfully address your needs - be they small or large.

Macintosh SE 60 MB Now Available



Computer Attic has invested heavily in the development of it's people and in the resources necessary to support our customers. ServiCenters are located in each store and On-Site Service is always available. No matter what your need may be, Computer Attic is the place to go because we are more interested in creating a long term customer relationship than in making a quick sale.

Authorized Dealer

COMPUTER ATTIC

Palo Alto
382 University Ave
(415) 322-0639
Corp. Sales: 322-4800

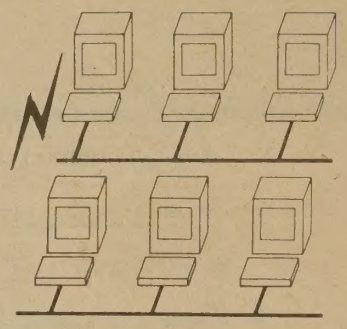
Cupertino
10251 S. DeAnza Blvd
(408) 253-5300
Corp. Sales: 253-5300

San Francisco
217 Sansome St.
(415) 398-4541
Corp. Sales: 398-4543

Local Area Networks

NOVELL
Advanced Netware

NET
LOCAL AREA NETWORK SYSTEM



- We provide hardware & software installation & a full range of LAN services
- Lease to own option
- Maintenance/service contracts available

Desktop Publishing
A few words about
ATC Desktop Publishing Systems

Call for prices

Quality & Performance plus Service & Support

386 System
16 MHz 0 wait state
1MB RAM
1.2MB floppy drive
Mono-graphic card & monitor
Made in USA $1988

ATC Pro-286
Made in USA
8/10 MHz-1/0 wait state
512K RAM
Mono-graphic card & monitor
1.2MB floppy drive $888
w/40 MB H.D. . . . $1268

ATC Turbo-88
4.77/8 MHz
256K RAM
Mono-graphic card & monitor
360K floppy drive $425
w/20MB H.D. $715

SPECIALS

Multi I/O	$55
Monographic Card	45
Color Card	45
Mono Monitor	75
Color Monitor	250
EGA Monitor	360
1200B Modem	69
2400B Modem	149
Genius Mouse	69
Computer Paper	29
AB Switch Box	39

NEC Multispeed Laptop $1279
P7 Printer $599

HEWLETT PACKARD
Laser Jet Series II $1649

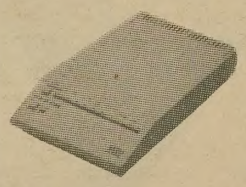
star NX 1000 $179
8 built in fonts & paper parking features

1-2-4 Memory Expansion Board for HP Laser Jet Series II $139

Service Contracts Available

New Mac Peripherals by EVEREX

Mac 20 MB Hard Disk (External) $495



Mac Modem 2400 Baud (External) $239

Mac 40/90 MB HD MS Access Time (External)	$869/1325
Mac II 20 MB HD (Internal)	$425
Mac II 40 MB HD (Internal)	$795
Mac II 90 MB HD (Internal)	$1295

Macintosh is a registered trademark of Apple Computer

EVEREX
EGA Micro Enhancer
$119
List $395

1200 Baud Modem
$79
List $199

	Sale	List
EVGA	$259	$395
Pocket Modem 300/1200 Baud	109	299
Evercom 2400 Baud Internal/External	180/209	289/499
Everdrive Internal 40/80 MB	399/859	865/1299
20/30 MH Hard Disk Kit	265/310	480/525

Hurry while supplies last—limited quantity!!

ATC
(415) 776-1520
1504 Franklin Street, Suite 306 San Francisco, CA 94109

DEALER INQUIRIES WELCOME
Sales, Upgrades, Repair Services

Not responsible for misprints
Prices subject to change without notice.
Sale prices effective through April 15, 1988
You must bring in this ad to get these prices!

MICROTIMES

Consumer Audit BPA

PUBLISHER/EDITOR
Dennis Erokan

CREATIVE
CREATIVE DIRECTOR Lee Ann Nelson
MANAGING EDITOR Mary Eisenhart
EDITORIAL ASSISTANT Robert Beauchamp
PRODUCTION MANAGER Doug Boone
ASSISTANT PRODUCTION MANAGER Sheryl Manchester
ASSISTANT ART DIRECTOR Michael P. Didier
PRODUCTION ASSISTANT Mary Beth DeSantis
ART STAFF David Cunha, Tim Levin, Lisa Lusk, Missy Mote, Heidi Sommer, Deborah Venezia
CAMERA OPERATOR John Moorehead
NEWS EDITOR Paul Hoffman
CONTRIBUTING EDITORS Robert D. Athey, Jr., Bennett Falk, Helmi Kobler, Matthew Leeds, Michael Markowitz, Ben Means, Jean Means, Brock Meeks, Ken Milburn, Jeff Spurrier, Birrell Walsh, Jim Wolcott, Wayne A. Yacco
CONTRIBUTING WRITERS Sue Albert, Lenny Bailes, David Batterson, Steve Guttman, David Hawkins, Woody Liswood, Nancy Mulvany, Aubrey Pilgrim, Sharon Rufener, Stephan Wickham
CONTRIBUTING PHOTOGRAPHERS Marc Franklin, Ken James, Michael Jay, Pat Johnson, Jim Marshall, Ann Summa
EDITORIAL CONSULTANTS Don Hamilton, Pat Hamilton
TYPESETTING Image Factory, The Typesetting Shop, Inc.

ADMINISTRATION
ASSOCIATE PUBLISHER Miles Hurwitz
ACCOUNTING MANAGER Linda Schenk
ASSISTANT ACCOUNTING MANAGER Lesley Hunter
ACCOUNTING Brian DeLuca, Patrick Emerson, Rosemary Galten, Carol Hunter, Brian Murray
PUBLISHER'S ASSISTANT Erica Stein-Oakley
ADMINISTRATIVE ASSISTANTS Jef Brewer, Stephen Kearney, Jill Stauffer

ADVERTISING
ASSOCIATE PUBLISHER Joe Amadeo
ASSISTANT TO THE ASSOCIATE PUBLISHER Marianne P. Stone
ADVERTISING DIRECTOR Chuck Stanley
NATIONAL ACCOUNT DIRECTOR Bill Reefer
SENIOR ACCOUNT EXECUTIVE Reece A. Franklin
ADVERTISING & PROMOTION Susan R. Bower, Tina Gagliano, Barry Green, Lee Salem, Jane Shepherd
ADVERTISING ASSISTANTS Renèe Delucchi (San Francisco), Sally Engelfried (L.A.)
National Reps.: Carol Oppenheimer, John Lockhart

DISTRIBUTION
DISTRIBUTION MANAGER John Erokan
Art Holland, *Assistant Manager/LA*
DISTRIBUTION STAFF John Clefstad, Rand Crook, Roe Eyth, Danny Fernandez, Bruce A. Fraser, Frank Grygus, Eliot Kleinberg, Kirk Lanier, Trevor Loffs, Ron Lubben, Loren Ozaki, Jac Michanovic, Joseph Rafalo, Resource Dist., SDS, Bill Smith, Alan Spector; Racks by Free Distribution
MICROTIMES FOUNDERS Dennis Erokan, Don Hamilton, Pat Hamilton

This Vol. 5. No. 5, May 1988, Whole No. 43 MicroTimes, California's Computer Magazine, is published by BAM Publications, Inc., 5951 Canning St., Oakland, CA 94609. Phone (415) 652-3810. Los Angeles Office, 1800 N. Highland, Suite 220, Hollywood, CA 90028. Phone (213) 467-7878. San Jose Office, 36 Harold Ave., Suite 8, San Jose, CA 95117. Phone (408) 244-4400. Anaheim Office, 800 S. Brookhurst, Suite 1F, Anaheim, CA 92804. Phone (714) 776-2900.

MicroTimes™ is © 1988 by BAM Publications, Inc.

Subscriptions rate: 12 issues, U.S.: 3rd Class $24 (Allow 3 to 4 weeks for delivery), 1st Class $50 (Allow 1 to 2 weeks for delivery). MEXICO & CANADA: Surface Mail $40 (Allow 4 weeks for delivery), Air Mail $65 (Allow 1 week for delivery). OVERSEAS: Surface Mail $40 (Allow 6–10 weeks for delivery), Air Mail $160 (Allow 1 week for delivery). To receive sample issues, please send $2 ($4 for overseas) to cover postage costs. Back issues are $4 each.

All rights reserved. Reproduction in whole or in part without permission of Publisher is strictly prohibited. Unsolicited material is gratefully accepted, but we can't be responsible for returning it unless it is accompanied by a stamped, self-addressed envelope. The staff and management of MicroTimes do not advocate or encourage the use of any product or service advertised herein for illegal purposes.

Below Cost Printing Calculator w/purchase $9.88 reg. 39.95

One of the *newest*, largest, and lowest priced displays in the USA!

WE BEAT EVERYBODY WE TAKE TRADE-INS

Warehouse Clearance Sale

As Seen On "The People Are Talking" Channel 5 Sally Socolich

Thank you to our thousands & thousands of customers for making this give away possible!

SUPPLIES

BELIEVE IT OR NOT
Brand New
Interface Loaded
Office Typewriter
Only $99.88 ($695 value)
Trade in your working IBM Selectric II or III with correction and dual pitch and receive this offer for only $99.88

Check Great May Prices

Repair Service

Ribbons $36/doz

True Blue 386 is the best!

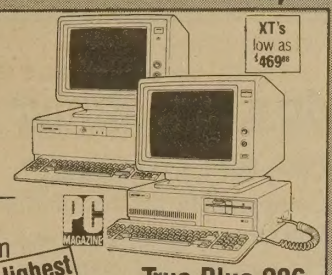
1 MB on 2 MB Board
20 MHz
32 Bit Memory
1.2 Floppy
Monitor
Runs EGA, CGA, & Monochrome on board.
Call for details.

$2259.88

Computers

AMAX 286 AT
Loaded - 20 Meg System
Only $1199.88

True Blue 286 AT
Loaded - 20 Meg, 1 MB System
Only $1499.88



Highest Quality

True Blue 286
As low as 899.88

1000's of CRAZY PRICES

HOT PRINTERS! DAISYWHEEL, DOT MATRIX, & LASERS

DYNAX
FORTIS .....DM 2010 .....299.88
BROTHER .....DM 2015 .....385.88
1 YR Guarantee Better than Epson

DX 15XL Serial 299.88
DX 25 7K 388.88
1310 .....239.88
DH 45 .....678.88

brother
1109 .....218.88
1509 ..... Free T/F 378.88
1709 ....539.88
HR40 .....628.88

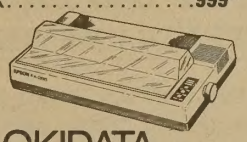
HEWLETT PACKARD
Laser Series II 1699.88
Laser Jet Plus .....Call
Laser Jet 500 .....Call

C.ITOH
715A 949.88
815 .....1428.88

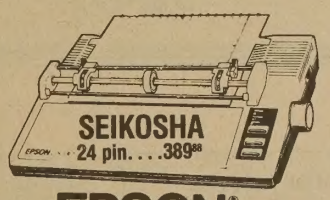
Panasonic
1080i .....Call
1592 ..... Others 479.88
1524 (24 pin) 628.88
Laser Printer 1488.88

STAR GEMINI
SG 10 .....228.88
2410 (24 pin) 499.88
1215 (wide carr.) 299.88
Other Models .....Call

TOSHIBA
1000 .....868.88
321 SL .....Call
341 SL .....Call
351C 999.88
351 .....899.99
321 Par & Ser .....Call
351 SX 999.88



OKIDATA
Okimate 20 .....135.88
192 Plus 299.88
193 Plus .... Call For Latest Prices 488.88
292 P 489.88
293 P 659.88
Laser Printer 1388.88

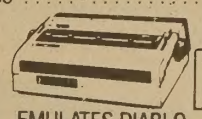


EPSON
LQ 800 .....478.88
LQ 1050 .....768.88
SL 80 (Com 64) 229.88
SL Imagewriter 249.88
24 Pin (new) 399.88
Others

IBM
Proprinter 388.88
Other models .....Call

DIABLO
DAISYWHEEL PRINTER Par 169.88

625 .... HOT 529.88
635 ....888.88



THE BEST

EMULATES DIABLO
SILVER-REED

Exp 600 (25 CPS) 469.88
Exp 800 (40 CPS) 689.88

NEC
P5 XL (24 pin) 1048.88
3550 .....799.88
2200 .....374.88
P7 (24 pin) 628.88
Other models .....Call

JUKI
6100 .....355.88
6300 .....669.88
5510 .....Color 359.88

Canon
BJ 80 .....469.88
LPBP-8 Model II 1688.88
Other Models .....Call

FUJITSU
Daisymax 320 .. More Models 999.88
DX 2100F 379.88
DL 3400 Color 789.88
DL 3300 .....599.88
DX2300 .....478.88
DL2400 .....99.88

CITIZEN
MSP 10 ... Call For 299.88
MSP 15 .... Latest 374.88
MSP 35 ..... Prices 458.88

PRINTERS/TYPEWRITERS

OLIVETTI - World's Best
CX 880 .....368.88
901D (12K mem) 468.88

SILVER REED
EP34 w/int 299.88

ROYAL Typewriters
Beta 8200 .....299.88
Beta 9000 .....2K mem 378.88

OLYMPIA

Carrera/199.88
Compact S Call/Int.
Compact I 299.88

Startype Office .....Call
121 XL 80K Spellwrite 288.88
Orbit XP (parallel int) 269.88
125XL (7K mem) 349.88
Orbit/Int Heavy Duty ES95 .....399.88

brother
AX/10 .....129.88
CE65 .....249.88
CE58 .....3K mem 268.88
CE50 .....199.88
EM100 Heavy Duty 469.88

SHARP
370 17" carr. Office 399.88

EPSON
300 .....8K mem 226.88

PANASONIC
210 .....6K mem 199.88
TK 35 .....4K mem 268.88

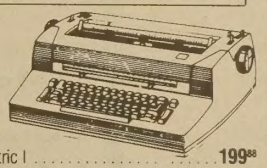
100's of miscellaneous electric & electronic typewriters from 59.88
MUST SELL NEW, USED, DEMOS

SCM SMITH-CORONA
Sterling 129.88
Smith Corona X2000 .. Spellwrite Word Erase Electronics ..188.88
5000/5100 ....188.88
6200 ....268.88
6600 .....12K mem 299.88
6700 .....16K mem 375.88
8000 ....389.88
8500 .....16K mem 475.88

Other models
Pwp 6 .....538.88

WORD PROCESSOR
		w/TW
Smith Corona Pwp 12	328.88	568.88
Smith Corona Pwp 14	448.88	649.88
Amstrad		388.88
Magnavox (w/rebate)		549.88

IBM



Selectric I	199.88
Selectric II	349.88
Selectric III	589.88

Others

CANON
Typestar 7 .....258.88
350 .....8K mem 499.88
500 .....7K mem 688.88

Others

COPIERS

Canon PC Cartridges .. 49.88

The Total Copier System

Sharp Z50 .....489.88
Sharp Z55 .....619.88
Sharp Z70 .....Call
Sanyo 599.88
Ripro Jr. 568.88
Sharp 7100 .....979.88
Ripro 2050 .....1188.88
Sharp 8100 .....2288.88
Sharp 8260 .....2788.88

Copier $2995
Document Feeder .$899
10 Bin Sorter $799
Total $4693

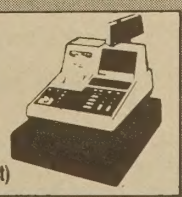
- 15 CPM
- Enlargement & Reduction
- Color Capabilities
- Stationary Top

Call for special price
Hurry Now While Supplies Last!

CASH REGISTERS *SAVE 50-60%*

Sharp 1017 **169.88**
Sharp 1050 **249.88**
Maxi **179.88**
Sharp 2050 **299.88**

Victor 3001 **269.88**
Victor 3008 **499.88**



For any size business
ELECTRONICS We have others & accessories
(2-4 dept)

SUPPLIES & ACCESSORIES

NEW LOCATION

YOU MUST BRING AD TO GET THESE PRICES

DEMA INC

102 Grand Ave., So San Francisco, CA 94080
(415) 872-6668

HOURS
M-F 9-5 Sat 10-5 Thurs till 7

All prices and specifications are subject to change without notice. Not responsible for misprints.

CALL FOR DEALER PRICES

CORPORATE DISCOUNTS

THE COMPUTER INTERFACE SPECIALISTS

Specializing in dealer, department store, mail order and premium sale. All offers limited. Call or come in for details. Cash, credit card, check or money order. We ship UPS — add $5.00 for handling.

REPAIR SERVICE

PHONE ORDERS WELCOME

master charge VISA

1000's TO CHOOSE FROM • 1000's IN STOCK!

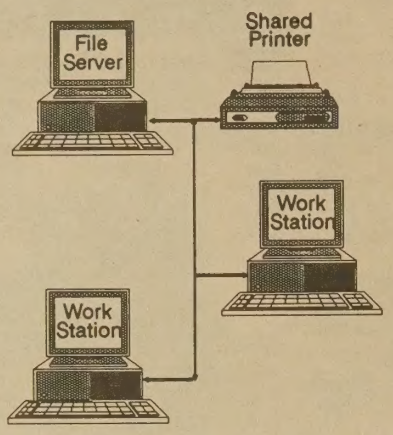
Super Specials
Keytronic KB's 55.88
Seagate 20 Meg HD w/Controller 254.88
Autoswitch EGA (640x480) 155.88
Super XT I/O & EGA Card 119.88
Microsoft Compatible Mouse 49.88
Bare Bones AT 286
(Case, PS, MB, 512K, Bios) 589.88
Mitsubishi Diamond Scan
EGA 920x580 .....499.88
Magnavox EGA 399.88
IBM Cables .....from 5.00

Ribbons $36/doz

FAX MACHINES
Sharp 150 .....1188.88
Sharp 210 .....1348.88
Panasonic KX 15 .....1478.88

LOCAL AREA NETWORKS

Featuring : NOVELL Advanced Netware and ITT XTRA Business Systems Computers



We Provide a Full Range of Services

- Complete LAN Packages
- Complete Hardware Solutions
- Full On-site Installation and Training
- Pre-purchase site evaluation
- Systems Consulting, as needed
- Remote Support Services

Our Areas of Specialty Include

- Non-profit Organizations
- Professional Corporations
- Finance / Accountancies
- Entreprenuerial Environments

Announcing.....

Large Capacity Hard Disk SubSystems

- **Usable** Drive Capacities To **267 MB**
- Access Times As Fast As **16 Msec.**
- Maxtor, CDC and Miniscribe Disk Drives
- Fully Compsurfed - Installation Included

160 MB ESDI Subsystem $2,895
267 MB ESDI Subsystem $4,295

Available Now For Adv. Netware 2.0a

May's Special !

ITT 286 File Server

ITT XTRA 286 FILE SERVER

- ITT XTRA PS 401 File Server
- 10 Mhz 80286 Processor
- 1 MB RAM, 1.2 MB Floppy
- Mono Monitor, Keyboard
- 40 MB *High Speed* Hard Disk

Fully Network Ready

$2,495

Novell Netware

Entry Level Netware	$595
Adv. Netware/286	$2,195
Non-Ded.Netware	$2,195
SFT/286 Ver 2.1	$4,295
Disk Coprocessor	$500

Onsite Installation Included

File Servers

ITT 286 Server $2,195
- 10 Mhz PS-401, 1M RAM
- 1.2 MB Floppy, Monitor

ITT 386 Server $3,795
- 16 MHz PS-701, 1 M RAM
- 1.2 MB Floppy, Monitor

Racore 386 Server $3,595
- 16 MHz 80386, 1 M RAM
- 1.2 MB Floppy, Monitor

Disk Subsystems

40 MB	28 msec	$600
70 MB	28 msec	$1,095
104 MB	28 msec	$1,695
160 MB	16 msec	$2,895
274 MB	25 msec	$4,295

Formatted Disk Capacities

Work Stations

ITT 8088 Worktation $1,135
- 10 Mhz PS-301, 768K RAM
- 760K Floppy, Monitor

ITT 286 Workstation $1,895
- 10 Mhz PS-401, 1M RAM
- 1.2 MB Floppy, Monitor

ITT 386 Workstation $3,795
- 16 Mhz PS-701, 1M RAM
- 1.2 MB Floppy, Monitor

Novell Network Interfaces Supported:.....Ethernet, ARCNET, Token-Ring, StarLan, Lanpac II, X.25 Remote Bridge

Precision Software Products

833 Market St. Suite 506
San Francisco, CA 94103

(415) 896-5464

P.S. We sell single user systems too!! ... The Management.

CALENDAR OF EVENTS

April 15 – 16 Bay Area Business Exposition: The Business Classroom. Fiesta Hall, San Mateo County Fairgrounds. For information call: (415) 574-5730.

April 16 Computer Swap Meet. Santa Clara County Fairgrounds, San Jose. RK Productions. (800) 252-7927.

April 16 Bay Area Computer Swap. Cow Palace, San Francisco. Microshows (800) 433-7469.

April 17 Concord Computer Show And Sale. Concord Elks, 3994 Willow Pass Rd. Golden Gate Shows, (415) 388-8893.

April 18 Time Line Workshop. Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

April 19 SBT Database Accounting Library Seminar. Sausalito. Contact SBT Corporation (415) 331-9900.

April 20 – 21 Optical Storage For Small Systems Conference. The San Francisco Airport Hilton. Contact Rothchild Consultants (415) 681-3700.

April 22 Art Of The Computer Exhibit Reception. De Anza College's Euphrat Gallery. Exhibit runs April 5 – 28. Contact Bay Area ACM/SIGGRAPH (415) 321-5406. Euphrat Gallery (408) 321-5046.

April 23 The Amiga Class: Introduction And Overview. Contact Pat Baily (415) 949-4864.

April 23 Computer Swap. Alameda County Fairgrounds, Pleasanton. Microshows (800) 433-7469.

April 23 Vallejo Computer Show And Sale. Solano County Fairgrounds. Golden Gate Shows, (415) 388-8893.

April 23 Macintosh Computer Graphics In Journalism. Suite 3D, 329 Bryant Street, San Francisco. Call (415) 822-7063 for information.

April 23 Author Signing of The IBM AT Clone Buyer's Guide And Handbook. Whole Earth Access, Berkeley. Call 626-3549.

April 24 Author Signing of The IBM AT Clone Buyer's Guide And Handbook. Whole Earth Access, Concord. Call 626-3549.

April 25 – 27 IBM PC-Seminar. San Francisco. Data-Tech (201) 478-5400.

April 26 How To Automate Your Business Accounting System. Gateway Holiday Inn, San Francisco. Contact Beth Markus at J.C. Lukrich & Company CPA's, (415) 864-6770.

April 28 How To Build Your Own XT/AT Compatible. Fort Mason Center. Walnut Creek classes also. Registration: (415) 284-1024.

April 30 – May 1 Atari and Amiga World Class Exposition. Fashion Island Mall, San Mateo. Contact Computer Spectrum (415) 347-4576.

April 30 Build & Explore a 286/386 Clone Seminar With Edwin Rutsch. Whole Earth Access Computer Training, Berkeley. Contact Sharon Williams at (415) 843-1700 ext. 279.

May 2 – 3 The Elusive Payoff In Information Technology: A Conference For Senior Executives. McGraw Hill World Headquarters, New York City. Call (212) 512-4402 for more information.

May 2 – 5 AutoCAD Expo '88. McCormick Place North, Chicago, Illinois. Contact Autodesk at (415) 332-2344 ext. 799.

May 7 Computer Swap. Cow Palace, San Francisco. Microshows (800) 433-7469.

May 9 – 10 Understanding Local Area Networks Seminar. San Francisco. Data-Tech (201) 478-5400.

May 9 – 12 Spring COMDEX. Georgia World Congress Center, Atlanta Georgia. Contact the Interface Group at (617) 449-6600.

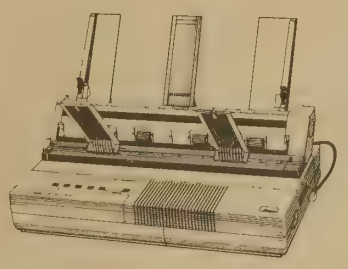
May 12 Time Line Workshop. Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

May 14 Computer Swap. Alameda County Fairgrounds, Pleasanton. Microshows (800) 433-7469.

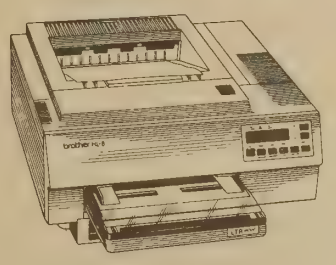
May 14 Santa Rosa Computer Show And Sale. Sonoma County Fairgrounds. Golden Gate Shows, (415) 388-8893.

continued

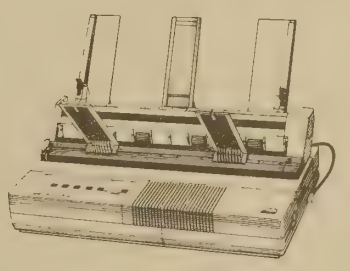
In Stock at Mini Micro Supply.



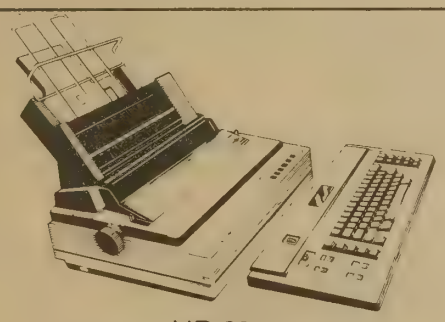
1509
Dot Matrix Printer



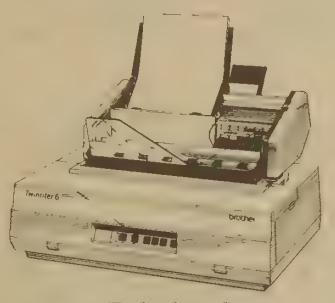
HL-8
Laser Printer



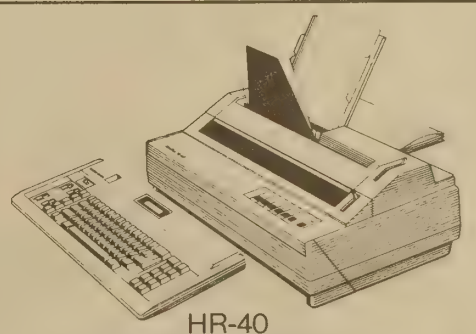
1709
Dot Matrix Printer



HR-20
Letter Quality Printer



Twinriter 6
Dot Matrix/Daisy Wheel Printer



HR-40
Letter Quality Printer

Mini Micro Supply
The Reseller's Resource.
Mini Micro Supply Company, Inc.
2050 Ringwood Ave., San Jose, CA 95131
(408) 434-6859

brother

Call your local retail store:

CIMPEX	Micronet, Inc.	MicroPoint	Rose Hill Systems	IC Systems
Mountain View	San Francisco	San Carlos	Scotts Valley	Oakland
(415) 964-5000	(415) 752-8843	(415) 591-7651	(408) 438-3871	(415) 430-1036

Best Prices - Excellent Service - Quality Products

AT 286 System

- 6/10 MHz AT, 0 Wait State
- 0K on 1 Meg Mother Board
- Real Time Clock w/Battery Backup
- 220 W Power Supply
- Deluxe AT Case (5 Dr. Case)
- Fully Assembled, Tested & Burnt-In

$369

16 MHz 286 System

- 6/12 MHz CPU, 16 MHz Landmark CPU Test same conf. as above w/ Phoenix Bios

$449

Min. Qty. 5, Sample Price slightly higher

10 MHz XT, 0 Wait

- 4.7/10 MHz, 0 Wait, Phoenix Bios
- 0K on 640K Mother Board
- Real Time Clock w/Battery Backup
- Built-In SR, PR, Game & 2 Dr. Fl. Contr.
- 150 W Power Supply/Slide-In Case
- Fully Assembled, Tested & Burnt-In

$189

- 4.7/10 MHz XT, same conf. as above, w/o Multi I/O

$159

Min. Qty. 5, Sample Price slightly higher

MGP Special!

- Monographic Card w/ Pr. Port, Herc. Comp. **$31**

386-21 MHz

- 8/16 Switchable Clock Speed, 21 MHz at Landmark CPU Test
- 0K on 1 or 4 Meg Mother Board
- Built-In 2 SR, 1PR Port
- 250 W Power Supply
- Deluxe Slide-In Case
- Fully Assembled, Tested & Burnt-In **$1249**
- 386 Mother Board only, w/0K **$1098**

Keyboard Special!

- AT Style XT Keyboard **$29**

Add-On Cards

- 2-in-1 Color/Monographic w/Pr. Port **$55**
- Monographic w/Printer Port **$33**
- Colorgraphic w/Printer Port **$33**
- EGA Card **$109**
- Everex EGA Auto **$119**
- No Slot Clock **$19**
- RS232 **$17**
- Game/Clock/Calendar **$25**
- Paral.l Printer Card **$13**
- Game Card **$13**
- XT Multi Disk I/O **$43**
- XT/AT Multi I/O, SR/PR/ Game Port **$35**

Power Supply

- 150 W Power Supply **$35**
- 180 W for Baby AT **$45**
- 220 W for AT **$59**
- 250 W for AT **$65**

Mother Boards

- 386-8/16 MHz (21 MHz Landmark) **$1098**
- 6/10 MHz AT, 0 Wait **$239**
- 6/10 MHz Baby AT w/ Award BIOS **$279**
- 6/12 MHZ, Award BIOS, Baby AT **$279**
- 6/12 MHz AT MB, 16 MHz L.Mark, 0 Wait, Phoenix BIOS **$309**
- XT 2-in-1 4.7/10 MHz, Built-In Disk I/O **$119**
- 4.7/8 MHz Turbo XT MB **$66**
- 4.7/10 MHz Turbo XT MB **$69**

Keyboards

- AT style XT Keybd. **$30**
- XT/AT Keyboard, 84 keys **$35**
- XT/AT Enhanced Keyboard, 101 Keys **$45**
- XT/AT Enhanced Click Type, 101 Keys **$55**

Modem

- 1200 Hayes Comp. Int. **$51**
- 1200 Hayes Comp. Ext. **$78**

Floppy Drives

- Fujitsu 720K 3.5" **$86**
- Fujitsu 360KB /1.2MB **$63/80**
- Teac 360KB /1.2MB **$79/89**

All Prices based on Min. Qty. of 10 Pcs., except where noted differently. All 5M Products have 1 yr. limited warranty. Not responsible for typographical errors. Prices subject to change without notice.

5M AMERICAN TECHNOLOGY, INC.
780 Montague Expressway, Suite 305
San Jose, CA California 95131
(408) 432-1155

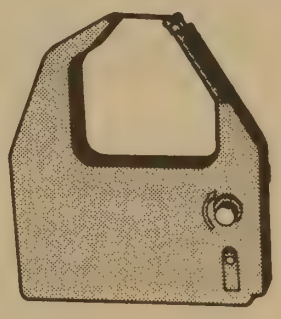
Mouse

- Logitec Mouse **$45**

The Secret of Great Printing

A high quality ribbon can be the best kept secret to good-looking printing. We use a higher quality ink and more of it. Now—you can have a ribbon that will run smoothly, won't fade, and will last longer. So if you want great printing, get your next ribbon order from us.

Colors Available!
Dealer Inquiries Welcome



"Providing Quality Ribbons For 27 Years"

American Ink Products Co.
630 E. 10th Street, Oakland, CA 94606
(415) 268-0825

CALENDAR OF EVENTS *continued*

May 14 Computers In Business Seminar. Hayward. Call (415) 452-1129 for information.

May 14 – 15 Amiga-Commodore Show. Santa Clara Convention Center. Golden Gate Shows, (415) 388-8893.

May 16 Philippe Kahn Featured Speaker SFPCUG Meeting. Fort Mason Center, San Francisco. Call (415) 751-5219.

May 16 – 18 National Database & 4th/5th Generation Language Symposium. Chicago, IL. Digital Consulting Inc., (617) 470-3880.

May 20 OS/2 — What You Need You Know Seminar. Data-Tech (201) 478-5400.

May 20 Mini Expo. 814 Mission Street, San Franciso. Contact AIA Computer Forum. (415) 331-9466.

May 21 Computer Swap. Santa Clara County Fairgrounds, San Jose. Computer Swap America. (415) 366-9162.

May 21 Stress Management For Computer Operators Workshop. Cal State University, Hayward. Call (415) 881-3605 for more information.

May 21 – 22 Oakland Computer Show And Sale. Oakland Coliseum. Golden Gate Shows, (415) 388-8893.

May 23 Time Line Workshop. Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

May 26 How To Build Your Own XT/AT Compatible. Fort Mason Center. Walnut Creek classes also. Registration: (415) 284-1024.

May 28 Computer Swap. Cow Palace, San Francisco. Microshows (800) 433-7469.

June 1 – 3 Independent Computer Consultants Association National Conference. Stouffer's Inn on the Square, Cleveland, Ohio. Call 1-800-GET-ICCA for more information.

June 9 Time Line Workshop. Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

June 11 – 12 HyperExpo and StackMart. San Francisco Civic. For information call (212)226-4141.

June 15 – 17 MacHack '88 The Macintosh Technical Conference. Ann Arbor, Michigan. Expotech Inc., (313) 882-1824.

June 20 Time Line Workshop. Know How, Inc. San Francisco. Contact Sherri Davis, Symantec-Breakthrough Software, (415) 898-1919.

June 21 – 22 SBT Database Accounting Library Seminar. Sacramento. Contact SBT Corporation (415) 331-9900.

---

*As a community service, **MicroTimes** lists trade shows, seminars, and other special events in the Calendar of Events free of charge on a space-available basis. To improve the likelihood of your listing's timely inclusion, please make sure we have the necessary information no later than the first of the month two months before the cover date of the issue in which you'd like it to appear (i.e. the deadline for the March issue, on the street in February is January 1). Send to: MicroTimes Calendar of Events, 5951 Canning St., Oakland, CA 94609.*

News about user group meetings and other regularly scheduled activities should be sent to User Group Network at the same address.

COMART

SPECIAL

SHARP LAPTOP 4501

- 512K RAM expandable to 640K
- 7.2 MHz, 2 FDR

$899

10MHz XT TURBO

$539

- 640K RAM on board
- 1 Drive 360K
- Hercules Comp. Graph. Card (Res 720 x 348) w/Parallel Port
- AT Style Keyboard
- Samsung Swivel Monitor Model 1252
- 150W Power Supply
- 6 Month Warranty

16 MHz 386 INTEL MICRO-PROCESSOR

$2050

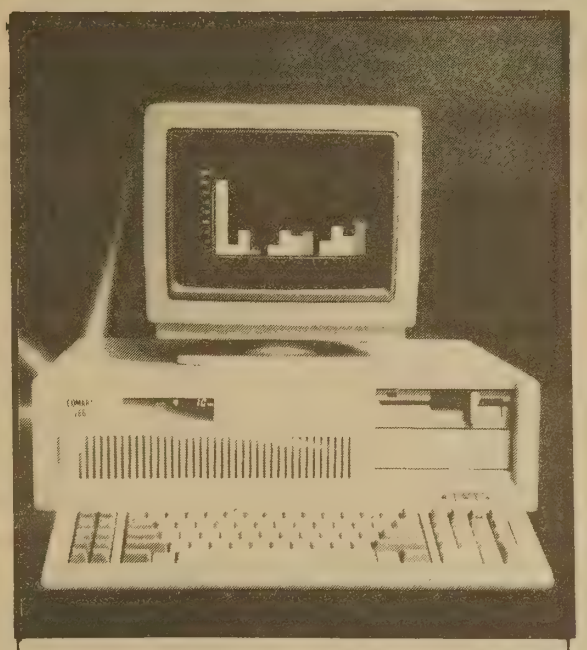
- 32-bit Architecture
- Phoenix BIOS
- 1 MB Static Column RAM
- Four Speeds (16, 8, 6, 4.77)
- Western Digital AT Controller
- 1.2 MB Drive
- 1 Serial and 1 Parallel Port
- Maxi Switch Keyboard
- Mono System
- 12-Month Warranty

COMPUTERS

Portable XT/AT	CALL
Compaq Deskpro 286	BEST PRICE
IBM PS/2 Systems	BEST PRICE

HARDWARE

Sharp Laptop 4501	$695
Toshiba T1000	BEST PRICE
NEC Multispeed	CALL
Hayes 1200/2400 modem	CALL
1200 modem internal w/software	$79
2400 internal modem w/software	$135
AST Six Pak	$125
Logimouse Serial	$75



AT 286 10 MHz 0 WAIT STATE

$979

- 640K RAM on Board
- 1.2 MB Drive
- FD/HD Controller for 2 Floppies & 2 HD
- Hercules Comp. Graph Card (Res 720 x 348)
- Samsung Swivel Monitor
- AT Style Keyboard
- Serial/Parallel Port
- 1 Yr. Warranty

MONITORS

Samsung 1252G Tilt & Swivel	$75
Samsung Color Tilt & Swivel	$260
Samsung EGA w/Swivel	$365
Amdek 310A	$135
Amdek 410A	CALL
PGS Max-12	$155
NEC Multisync II	CALL
Nanao 8060S/8060H	BEST PRICE
Nanao 8042/8030	BEST PRICE

SOFTWARE

Word Perfect 5.0	$210
IBM 3.3	CALL
MS-DOS 3.3	$95
Norton Utilities	$95
Mace Utilities	$75
Smartcom II	$45
Microsoft Windows	$75

DRIVES

Seagate 20 MB HD ST225 & Cont.	$285
Seagate 30 MB HD ST238	$315
Seagate 40 MB HD ST251	$410
Miniscribe 40 MB HD	$610
3.5" Drive 720 K	$109
Drive 360K	BEST PRICE
Sysgen 40 MB Tape Internal	$419
Irwin 20 MB Tape Kit Internal	$339

PRINTERS

Panasonic 1592 (180 cps, 136 col.)	$440
Panasonic 1091i/1080i	$220/198
Panasonic 3131 (20 cps, 110 col)	$289
Citizen Premier 35 (35 cps, 136 col)	$449
NEC 2200	CALL
HP Laser Jet II	CALL
Laser Feeder II	$1,450
Star NX-1000	$195
Star NX-15 (120 cps, 136 col)	$325
Citizen 40/45	CALL
Citizen Tribute (24-pin)	CALL
Citizen 120D	$155
Citizen MSP 50	$385

Authorized Dealer for

PANASONIC

SAMSUNG

CITIZEN

NANAO

"The Best Service at the Best Price"

Repair and Upgrade on IBM and IBM Compatibles

1407 Bush Street
(Near Van Ness)
San Francisco, CA 94109
FAX (415) 775-6135

DEALER INQUIRES WELCOME

(415) 775-0675

STORE HOURS:
Mon-Fri 10:00-6:30
Saturday 11:00-5:00

By Paul Hoffman

Look And Feel Continued

Paperback Software is in the strange position of being sued and not being able to get the suing party to define what the suit is about.

According to a motion recently filed by Paperback Software, Lotus President Jim Manzi refused to tell Paperback what it was being sued for. The motion, now before United States Magistrate Joyce L. Alexander, states that during deposition, not only did Lotus' lawyers prevent Mr. Manzi from giving answers, "Mr. Manzi also gave evasive or incomplete answers to a large number of questions." Lotus' lawyers did not return calls at press time. Lotus originally sued Paperback for infringement of copyright in the first major "look and feel" case.

Paperback's main argument is that Lotus has made unsubstantiated claims that Paperback may have used Lotus' source code in its *VP Planner* program and that this caused Lotus significant financial harm. Although Lotus has made these claims in many motions in the case, Manzi refused to answer any questions concerning why Lotus believes this. During the deposition, Manzi would not answer questions such as "Did anyone at Lotus Development Corporation attempt to disassemble the *VP Planner* object code module on the diskettes in its released form?" and "Is Lotus or is Lotus not charging Paperback Software with copying the source code?" Even on simple questions such as "Does Lotus claim it's the only one that can use ACOS for arc sine," Manzi gave nonresponsive or evasive answers, according to Paperback's motion.

Paperback is in the strange position of being sued and not being able to get the suing party to define what the suit is about. Part of this is due to poor luck of the draw: the federal judge originally assigned to the case has been completely tied up with another major federal trial, namely the fraud case against Lyndon LaRouche. That case has taken much longer than expected. A few months ago, Judge Robert E. Keeton assigned the numerous pre-trial motions in Lotus' suit against both Paperback and Mosaic (the manufacturer of *Twin*) to United States Magistrate Joyce L. Alexander. Lotus objected to the movement of the motions to the magistrate, causing many lawyers to assume that Lotus was trying to drag out the case. The deposition indicates that this might be exactly what Lotus is trying to do.

According to papers filed with the motion, it took almost a year for Paperback to get to ask Manzi questions about the case. It needed to ask five times and ask the court to compel Manzi to give the deposition. Approximately one quarter of the transcript of the deposition is Lotus lawyers instructing Manzi not to answer or arguing about the questions. Lotus' lawyers prevented Manzi from answering questions about why Lotus thought Paperback was violating Lotus' copyright due to lawyer-client privilege. Manzi would not give information about how much Lotus thought it had lost due to Paperback's sales, even though it is claiming damages in their suit.

Paul Hoffman is a freelance writer who has written five books about computers.

Apple Sues Microsoft Over Look And Feel Of Windows 2

In a move certain to have a profound effect on the microcomputer industry, Apple Computer has filed a suit against Microsoft, claiming that *Windows 2* infringes on Apple's copyright on the look and feel of Macintosh screens. Apple also sued Hewlett-Packard for its *New Wave* operating environment, which is based on *Windows 2*. The suit may have the effect of delaying the release of the OS/2 Presentation Manager until some of the issues in the case are settled, or at least until Microsoft feels secure in its legal position in the case. The case came as a surprise both to the computer

APPLE-HP 1985 AGREEMENT

This Agreement is entered into on this 22nd day of November, 1985, by and between Apple Computer, Inc., a California corporation having its place of business at 20525 Mariani Avenue, Cupertino, California 95014 (hereinafter "Apple") and Microsoft Corporation, having its place of business at 10700 Northup Way, Bellevue, Washington 98008 (hereinafter "Microsoft").

The parties have a long history of cooperation and trust and wish to maintain that mutually beneficial relationship. However, a dispute has arisen concerning the ownership of and possible copyright infringement as to certain visual displays generated by several Microsoft software products. These products are Microsoft's operating environment program, "Microsoft® (Windows Version 1.0," the three Microsoft applications programs developed under the January 22, 1982 agreement between Microsoft and Apple for use on Apple's Macintosh Computers: an electronic spread sheet program ("Microsoft® Multiplan®"), a business graphics program ("Microsoft® Chart") and a database program ("Microsoft® File"), and two other Microsoft application programs: an integrated electronic spread sheet program ("Microsoft® Excel") and a word processing program ("Microsoft® Word"). By means of this Agreement the parties intend to resolve the dispute and each acknowledges that the valuable consideration underlying this Agreement consists of the resolution of the dispute and the several undertakings and accommodations of the respective parties described below. Accordingly, the parties agree as follows.

1. Acknowledgement. For purposes of resolving this dispute and in consideration of the license grant from Apple described in section 2 below, Microsoft acknowledges that the visual displays in the above-listed Microsoft programs are derivative works of the visual displays generated by Apple's Lisa and Macintosh graphic user interface programs.

2. Visual Copyright License from Apple.

A. Grant. Apple hereby grants to Microsoft a nonexclusive, worldwide, royalty-free, perpetual, nontransferable license to use those derivative works in present and future software programs and to license them to and through third parties for use in their software programs. This license shall not include new software programs written by Microsoft which are similar in function to Microsoft® Excel and are offered for license to the public prior to October 1, 1986. As a condition to this license, Microsoft shall cause its visual copyright notice to appear in its products which use visual displays licensed hereunder.

B. Warranty. Apple hereby warrants that neither Apple nor any of its agents, representatives or attorneys knows of any patent, copyright, trade secret or any other right or claim of or by any third party to these licensed visual copyrights in the Lisa and Macintosh graphic user interface programs. Each party shall notify the other promptly of any such claim and will cooperate fully in the defense of such a claim. Apple shall indemnify and hold Microsoft harmless from any such claim of which it had such knowledge and any damages and reasonable expenses arising therefrom.

3. Patent License from Apple.

A. Grant. Apple hereby grants to Microsoft a nonexclusive, worldwide, royalty-free, nontransferable license to make, use and sell the inventions described and claimed in claims 9, 11, 12 and 13 of United States Patent No. 4,464,652 for the life of the patent. Microsoft in turn may license these rights to and through third parties for use in their software programs and hardware products. Microsoft is not required to cause any patent marking to appear in its products which use any such inventions.

B. Warranty. Apple hereby warrants that it owns the patent and to the best of its knowledge there are no claims asserted by any third party to the inventions described in the claims.

4. Release. Apple hereby waives any other copyright, patent, trade secret or other claim or right it may have as to Microsoft® Windows Version 1.0.

5. Visual Copyright License from Microsoft. Microsoft hereby grants to Apple a nonexclusive, worldwide, royalty-free, perpetual, nontransferable license to use any new visual displays created by Microsoft during a period of five years from the date of this agreement as part of its Microsoft® Windows retail software product in software programs and to license them to and through third parties for use in their software programs. As a condition to this license, Apple shall cause its visual copyright notice to appear in its products which use such Microsoft visual displays.

6. Revision of Microsoft® Word. Microsoft shall revise Microsoft® Word which operates on the Apple Macintosh computer by enhancing and improving the program as specified in Exhibit A to this Agreement. Microsoft shall use its best efforts to complete the revision by July 31, 1986.

7. General Provisions.

A. Confidentiality. The parties shall keep the terms and conditions of this Agreement in strict confidence, except that each party may state that it has entered into an agreement with the other concerning visual copyrights.

B. Representations. The parties represent that each is free to enter into this Agreement and is not and will not become a party to any agreement inconsistent or in conflict with any of the terms or conditions of this agreement.

C. Breach and Termination. If a breach of this Agreement by either party continues more than 30 days from the date of written notice of such breach by the non-breaching party, that party may terminate the Agreement by giving written notice to the other. Waiver by a non-breaching party of any breach by the other shall not be deemed to be a waiver of any other or subsequent breach. The rights of the parties under this clause are in addition to any other rights or remedies provided by law or under this Agreement.

D. Notices. Any notice required under this Agreement shall be given by first class mail, postage prepaid, with return receipt requested.

E. Assignment. Except in the case of the sale of substantially all of the assets or controlling stock, this Agreement may not be assigned, nor the rights granted hereunder (other than the sublicensing rights contained in paragraph 2) transferred by either party without the prior written consent of the other party.

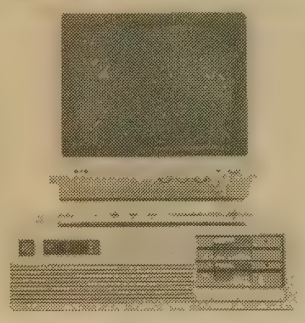
F. Independent Contractor. This Agreement shall not be construed as creating an agency, partnership or joint venture between the parties.

G. Entire Agreement. This Agreement constitutes the entire agreement between the parties with respect to the subject matter treated herein. This Agreement shall not be amended except by a written agreement signed by both parties.

H. Binding Effect. Subject to the limitations expressed above, this Agreement will inure to the benefit of and be binding upon the parties and their successors in interest.

the page where you save... BIG!

CASES ★★★★★★★★★★★★★★★★
XT SLIDE 24.50
AT STYLE XT SLIDE 27.00
AT BABY SLIDE 33.00
REG.SIZE AT/2 DR SLOT 46.50
AT 3 DR SLOT HORIZ LEDs 47.50
TOWER W/DIGITAL DSP/PS... 290.00
TOWER W/200W PS 220.00
POWER SUPPLIES ★★★★★★★★★
150W XT 32.50
185W BABY AT 39.00
200W AT & 386 ..... 51.50
MOTHER BOARDS ★★★★★★★★★
4.77 MHZ REG.XT 53.00
4.77/8mhz Turbo 56.00
4.77/10mhz Turbo XT 61.00
REG. AT 6/12 mhz 305.00
6/10 mhz DTK AT 228.00
BABY AT 6/8/10/12 1 WS 265.00
AT 15 MHZ 0 WS SI@18.7 ..... 425.00
MICRONIC 386 ..... 1333.00
386 W/EGA/SP/PP 1500.00
BARE BONE SYSTEMS★★★★★★★★
FCC XT 8 MHZ 140.00
FCC XT 10 MHZ 149.00
FCC AT 10 MHZ 389.00
AT 6 MHZ 295.00
KEYBOARDS ★★★★★★★★★★★★
5160 84 KEY XT/AT 37.00
UNITEK K151L XT/AT 36.00
84 KEY XT ONLY (K151L) 36.50
101 KEY ENH RT(5161) 40.00
KEYTRONIC 101 KEYBD 44.00
101 KEY ENHANCED 41.00
DISPLAY CARDS ★★★★★★★★★★
CGA W/PRINTER PORT 31.00
MGA W/P. PORT (s) 30.00
MGA W/P. PORT (386) 30.00
MCGP 59.00
CGA W/OUT P. PORT 31.00
GENOA 800X600 Lvl 7 ..... 190.00
EGA 640X350 AUTO SW 97.00
EGA 640X350 NON AUTO 95.00
EGA WONDER (ATI) 170.00
EXPANSION CARDS ★★★★★★★★
2.5 Meg RAM CARD FOR AT 66.00
I/O CARDS W/CABLES ★★★★★★★
AT I/O PLUS GP/SP/PP 30.00
LONG MULTI I/O XT 35.00
PRINTER CARD XT/AT 9.00
SERIAL CARD XT 13.50
GAME CARD XT/AT 10.00
DISK CONTROLLERS ★★★★★★★
FDC W/CABLE XT 2-DR 12.00
FDC W/CABLE XT 4-DR 20.00
AT/XT FDC 1.2meg & 360 ..... 30.00
WD HD XT 66.00
WD WA2 1003 HD/FD 104.00
TW WA2 HD/FLOP (12MHZ)... 100.00
RA2 HD/FD(For RLL Dr) 125.00
OMTI RLL XT 5527T 63.50
NCL HARD/FLOP.AT 103.00
30M H.D. CTRL(RLL) 64.00
FLOPPY DISK DRIVES ★★★★★★★
MITSUMI 360K 62.00
FUJITSU 360K XT 65.50
FUJITSU 360K AT 66.00
FUJITSU 1.2meg AT 78.00
TEAC 1.2meg AT 83.00
TEAC 720K FDD 78.00
TOSHIBA 3.5"720K FDD 87.00
TOSHIBA 1.44M FDD 98.00



ORDERS SHIPPED OUT WITHIN 24 HOURS.

AT 286 TURBO SYSTEM
(13 times faster than PC/XT)
- 6/12 mhz AT 286 mother board
- 512K on board (expandable to 1M)
- 1.2M Floppy Drive
- 200W Switchable Power Supply
- Reg. size AT slide case (3 LEDs & 3 sw. on panel)
- K151L XT/AT compatible keybd.

SUGG. RETAIL $999.00
$699.00*

AT BARE BONE KIT
- 200W Switchable Power Supply
- 6/10 mhz Turbo Mother Board
- Reg.size AT Slide Case (3 LEDs & 3 sw on panel)

$339.00

* Subject to change according to current RAM chip prices

XT 20 MEG. HARD DISK SYSTEM
(3.7-4 times faster than PC/XT)
- 4.77/10 mhz mother board
- 640K memory on board
- 20M Hard Drive (ST-225) w/ctrl.
- 1 360K Floppy Disk Drive w/ctrl.
- 150W Switchable Power Supply
- AT Jr. Slide Case (3 LEDs & 3 Sw. on panel)
- K151L XT/AT compatible keybd.

SUGG. RETAIL $849.00
$629.00*

XT BARE BONE KIT
- 150W Switchable Power Supply
- 4.77/8 mhz Turbo Mother Board
- AT Jr. Slide Case for XT (3 LEDs & 3 sw. on panel)

$130.00

NOVELL NETWORK SYSTEM
4 STATIONS + NOVELL NETWARE PACKAGE

Server(non-dedicated):
- 12 Mhz 0 wait AT-286 System with 1 meg ram om board.
- 2.5 meg ram card w/256K on board
- 1.2 meg floppy drive w/controller
- MGA w/printer Port
- Amber monitor w/tilt & swivel base
- SMC Arcnet card
- Passive Hub
- 101 key keyboard w/tactile feel
- Hard disk drive (optional)
- Tape Back-up (optional)

Workstations:
- **AT-286 Workstation w/256K memory (640K option)**
- **1 Floppy Disk Drive w/controller**
- **Monochrome Graphic Card**
- **Flat Face Mono Monitor with T/S base**
- **Keytronic 101 Key Keyboard**
- **SMC ARCNET Card**

Network Software:
NOVELL ELS NetWare 286 Level 1

$3950.00

SUGG. RETAIL:$9800.00

DEALERS ONLY

★ ALL PRICES ARE FOR QUANTITIES OF 10 PLUS

New Business Hours:
7 AM - 5 PM PST.

HARD DRIVES ★★★★★★★★★★★
SEAGATE ST225/CTRL 259.00
ST-225 W/O CTRL 205.00
MINISCRIBE 20M/CTRL 244.00
FUJI FK309-26 20M HD 214.00
FUJI FK309-39R 30M 228.00
SEAGATE ST-251 40M HD 376.00
SEAGATE ST238/CTRL 264.00
ST-4051 AT 39ms 510.00
ST-4053 AT 28ms(FH) 529.00
ST-4096 AT 28ms 729.00
TEAC 40meg 370.00
TANDON 85M HD 759.00
MODEMS ★★★★★★★★★★★★★
ANCHOR PATRIOT 1200 ..... 64.50
USR 2400 MICROLINK 138.00
PATRIOT EXT 2400 Bd 167.00
PRINTERS ★★★★★★★★★★★★
CITIZEN 120D 142.00
CITIZEN 180D 163.00
PANASONIC KX-P1080iM2 .... 169.00
PANASONIC KX-P1091iM2 .... 193.00
HP LASER SERIES II 1673.00
HP SCANNER JET 1559.00
2MB HP RAM CARD 737.00
MONITORS ★★★★★★★★★★★★
PACKARD BELL AMBER T/S ... 67.00
SAMSUNG AMBR 1252G T/S ... 68.00
SAMSUNG AMBR FLAT 12SF ... 78.50
SAMSUNG RGB 1464W T/S ... 216.00
SAMSUNG RGB 1465 T/S 224.00
SAMSUNG EGA 1453M1 T/S ... 350.00
S'SUNG(Intec)1453M EGA 344.00
CTX 2422 EGA 349.00
NEC MULTISYNC II 584.00
M'SUBISHI M/SYNC 1371A ... 479.00
MITSUBA FLAT 710A 116.00
TAPE BACKUPS ★★★★★★★★★★
ARCHIVE 40m 5240 XT 345.00
ARCHIVE 40m 5540 AT 355.00
ARCHIVE 40m XE3240 XT 464.00
ARCHIVE 40m XE 3540 AT 469.00
ARCHIVE 60m INTERNAL 480.00
MICE ★★★★★★★★★★★★★★★★
LOGITECH 67.00
GENIUS 36.50
CABLES & SWITCH BOXES ★★★★
AB DATA SWITCH 17.90
6'PRINTER CABLE 5.00
18'PRINTER CABLE 12.00
KEYBOARD EXTEN CABLE 3.25
MONITOR EXTEN CABLE 4.20
WA2 CABLE 3.55
SERIAL CBL 10IN-25OUT 3.00
SERIAL CBL 10IN-9OUT 3.00
SERIAL CBL (Multi I/O) 3.50
SOFTWARE ★★★★★★★★★★★★★
PC SOFTWARE (DOS) 77.00
PC TECHNICIAN ..... CALL
ELS NETWARE 286 Level 1 ... 365.00
NOVELL ADV 286 W/KCD ... 1315.00
COPYII PC W/OPTION BD 87.50
OTHERS ★★★★★★★★★★★★★★
U P S ..... CALL
SYSTEM STAND 9.50
ACTIVE HUB(RT-8702 ..... 282.00
PASSIVE HUB(USA) 40.00
PASSIVE HUB(Generic) 26.00
JOYSTICK (FOR IBM PC) 13.50
DISKETTE 00.45
IC KIT FOR 2nd SER.PORT/AT ... 11.00
IC KIT FOR 2nd. SER.PORT/XT ... 7.00

- Shipping charges extra.
- 1 year limited warranty.
- $100 minimum order.

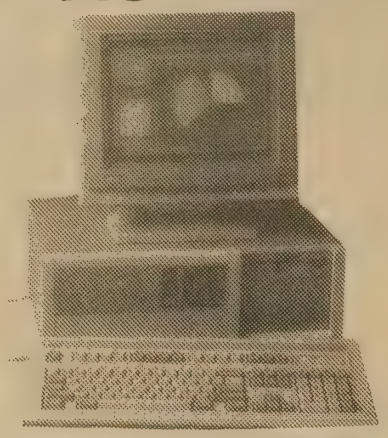
WELLWAY INT'L. CORP.

1633 W. Washington Blvd.,Dept.MT-488, Montebello, CA 90640
Tel.:**(213)722-5511** • Fax:**(213)722-5856**

- Prices & availability subject to change without notice.
- Credit card sales + 3%,$200 min.

TECHNOLOGY SHOWCASE

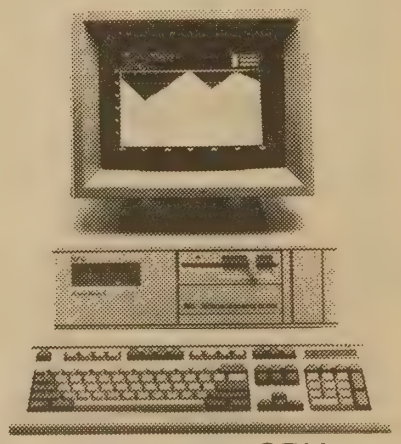
AST 286



Powerful AT Machine
10 MHz-80286 CPU
DOS 3.3
1.2 MB Floppy
PC Magazine's
"Editor's Choice"
In Stock-Call

386 System Available

PowerMate™ Portable

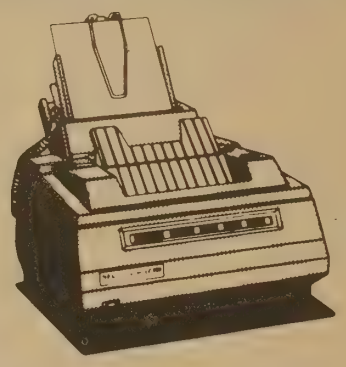


Powerful 80286 CPU, 20-MB 40MS high speed drive, 640K memory, EGA monitor support, electro-luminescent backlit LCD display. Goes where a desktop computer can't!

20 MB
$2595
List $3995

Quality...
...Service
...Products
...People
All Designed To Help You With Your Automation Needs!

NEC 890 Silentwriter™



"PC Magazine Editor's Choice." Postscript page printer, with 3 MB of internal memory, 35 resident fonts, dual input trays. Interfaces with Apple Macintosh. Great for all desktop publishing applications!

Call for pricing

NEC PowerMate 1-80286

$1395
List $1995

Special
Multisync Monitor
$499 (w/purchase $900 value)

Managing Technology
"Builds Business Success"

SPECIALIZED APPLICATIONS

Novell Networks
Medical & Dental Software
Desktop Publishing

4411 GEARY BLVD. • SAN FRANCISCO, CA 94118 • (415) 386-2700
1151 TRITON DRIVE, SUITE B • FOSTER CITY, CA 94404 • (415) 578-1276

NEW

The Power for New Horizons!

EQUITY II+

Optimum performance for both large and small business users. The Epson Equity II+: the AT compatible personal computer with the speed and features to satisfy the power user, the expandability to keep up with growing business demands and the value to make the most of your purchasing dollar.

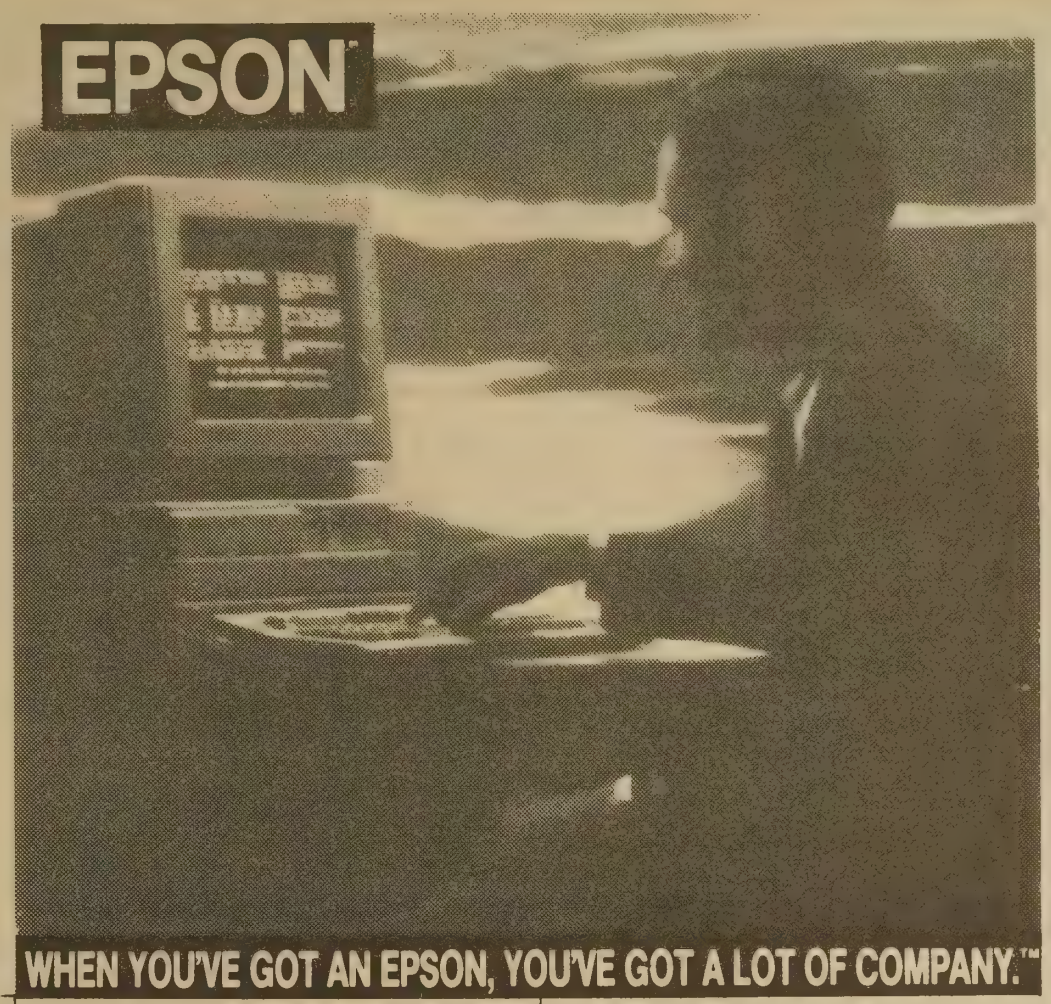
Base System

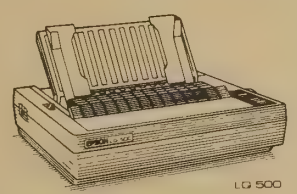
Only $1295

Monitor & Video Adapter

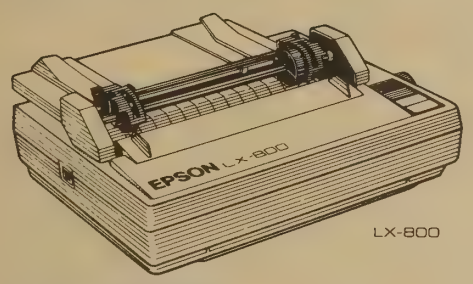
Only $1

(with purchase)

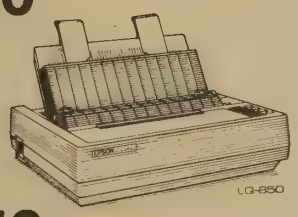




LQ 500



LQ 800



LQ 850

Call for pricing!

Complete Business Accounting Software

Turbo Paragon

AR, AP, PR, GL, Sales Analysis, Invoicing, Inventory, Job Cost, The Reporter, autoFinder

Call for Accounting Expertise!

EQUITY LAP-TOP

Now you can enjoy the benefits of a truly portable laptop computer that matches the performance of a fully-featured IBM compatible.

- NEC V30 dual-speed microprocessor - 4.77/10 MHZ
- 640 KB
- Weighs less than 13 lbs.

Managing Technology

"Builds Business Success"

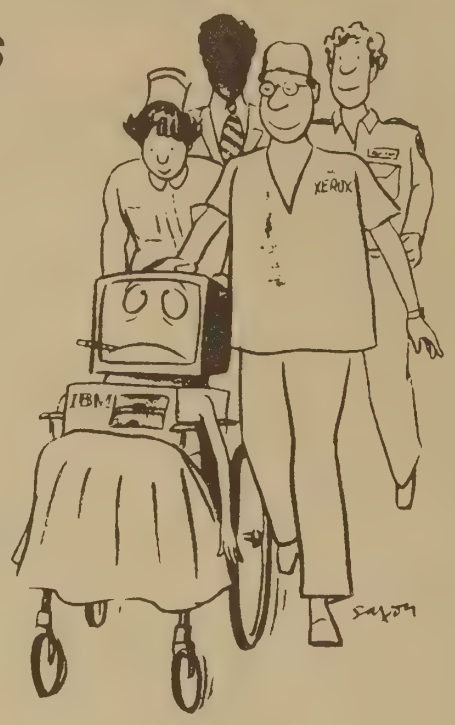
BUSINESS INTEGRITY
PRODUCT KNOWLEDGE
EXCELLENT PRICING

4411 GEARY BLVD. • SAN FRANCISCO, CA 94118 • (415) 386-2700
1151 TRITON DRIVE, SUITE B • FOSTER CITY, CA 94404 • (415) 578-1276

XEROX

Our PC system Emergency Room is ready for you.

It's your nearby AMERICARE Computer Repair Center. Prompt, guaranteed Xerox service for your PC systems, whether or not they're from Xerox.



You've got important business to finish, and, suddenly, your PC system goes down.

That's a real emergency. . . but now, Xerox has an Emergency Room for the quick, professional repair you need.

AMERICARE Computer Repair Center provides intensive care for many leading brands of personal computers, including IBM, AT&T, and Compaq.

And equally intensive care for many printers, like Epson, Okidata, Diablo and more, plus disk drives, monitors and peripherals.

Usually within 48 hours, often faster, with a choice of carry-in, pick-up and delivery, or On-Site service options.

Emergency supplies save your day.
Running short on supplies can also shut your system down.

Your AMERICARE Computer Repair Center stocks and sells supplies for many Xerox office products as well as needs for many other system brands, including Okidata, Epson, NEC and Kaypro.

Putting you back in business in no time.

And PC enhancements save your system.
Why not make your IBM or compatible PC smarter?

We stock and install enhancements that make your personal computer more powerful. . . *with more memory, more mass storage, and expansion boards.*

So with a more intelligent PC, you can process your work faster, using state-of-the-art programs.

And that could alleviate all kinds of information emergencies in the future.

For Intensive PC care, contact the nearest AMERICARE Computer Repair Center below. Xerox is ready. . . for any emergency.

COMPUTER SUPPLIES AVAILABLE

XEROX **COMPUTER REPAIR CENTER** TeamXerox

MasterCard VISA AMEX **Hours: Mon-Fri 8am to 5pm**

South Bay	East Bay	Sacramento	San Francisco
408-734-2540	**415-635-9300**	**916-920-2275**	**415-821-7719**

XEROX and Americare™ are trademarks of XEROX CORPORATION. IBM is a registered trademark of International Business Machines Corporation. AT&T is a registered trademark of American Telephone & Telegraph.

386 Dream Machine!

Design Your Own

Featuring: Mylex, Micronics, Mini Micro, Everex

QMS 810 Laser Printer. Call for Best Price!

We will help you ***design and configure*** your ultimate "Dream Machine" with motherboards and components from the industry's leaders. ***Guaranteed lowest prices in the Bay Area!*** Call today for details.

Leases Available for New Businesses!

MILLENIUM COMMUNICATIONS
critical design intelligence
3030 BRIDGEWAY
SAUSALITO, CA 94965
415 332 8141
TELEX: 697 2836
FAX: 415 332 4003

industry and to Microsoft, which claims that Apple made no effort to settle its differences before filing suit.

Apple's complaint says that the screen displays produced by *Windows 2* are illegal copies of its Macintosh screen; Apple asks that Microsoft be stopped from marketing *Windows 2* and that Microsoft pay Apple unspecified damages arising from the case. In response, both Microsoft and Hewlett-Packard have denied any wrongdoing. They claim that their products, while having some similarities to the Macintosh user environment, have significant visual differences and therefore are not infringements on Apple's copyright. Also, Microsoft had an agreement with Apple licensing the Macintosh's visual display; Microsoft claims that this still on disk agreement covered them for *Windows 2*, while Apple claims that it doesn't. At press time, Microsoft had not countersued Apple, but may do so in order to assure developers designing programs for *Windows* or OS/2 Presentation Manager that Microsoft will defend those environments. People who have seen IBM's pre-release version of OS/2 Presentation Manager say that it looks just like *Windows 2*.

In an attempt to mollify applications developers, Apple stated in its press release on the case that "Apple has no plans to initiate litigation against any third party application developer." However, the wording of the complaint is unclear on this issue. Apple requests that "defendants [Microsoft and Hewlett-Packard]...and those persons in active concert or participation with them" be prevented from infringing on Apple's copyright. Many Windows and OS/2 developers have cut back on their efforts until it is clear how Apple will handle third parties. The inclusion of Hewlett-Packard in the case has scared many developers, since *New Wave* is a user environment that is, in fact, a *Windows 2* application. Since there are no legal definitions of "applications," "operating systems," and "user environments," Apple could conceivably claim that any product that uses the *Windows 2* interface infringes on the Macintosh interface.

Much of the definition of the case will come during the next few months as Microsoft and Hewlett-Packard respond to Apple's claim and make counter-claims of their own. Clearly, there is a great deal of similarity in the screens between the Macintosh user interface and *Windows 2*. However, there is a fair amount of difference as well. The major difference that will probably be fought about in court is that each window in *Windows 2* has its own independent menu bar, while the Macintosh only has one menu bar. Also, Apple stressed the importance of the mouse in its complaint, but you do not need to use a mouse to use the Windows interface. Thus, the case may end up emphasizing the differences in the "feel" more than the "look." Icons in the two systems are used differently: they represent programs and documents on the Macintosh but represent running programs under *Windows 2*.

In an interesting move, Apple has requested a jury trial in its initial complaint. This indicates that Apple feels more confident presenting its case to a jury than to a judge. Although the moral and legal merits of the case will certainly be argued extensively in the computer press in the coming months, and a great deal of legal maneuvering will take place, the outcome of the case and the damages awarded will most likely be decided by a jury of average citizens.

MicroTimes will cover this story carefully in the coming months, given its crucial significance to the industry.

PC Plus Consulting Presents:

$2.99 per disk FREEWARE $2.99 per disk

Public Domain and User-Supported Software for IBM and Compatibles - DOS 2.1 and Higher.
Programs and Utilities to meet all your computing needs.

ADULTS ONLY

❒ **ADULTS ONLY/1 (147)** - German-made, great animated graphics. CGA required.
❒ **STRIP POKER (148)** - Watch out for your pants. CGA & Basic required.
❒ **X-RATED PRINTMASTER (149)** - X-Rated graphics for Printmaster Plus.
❒ **X-RATED PRINTSHOP (150)** - X-Rated graphics for Printshop.
❒ **BAD-BAD (289)** - Naughty adventure game. CGA required.
❒ **ASTRO-[bleep] (297)** - Arcade game. CGA req.
❒ **STRIP BLACKJACK (433)** - Also contains x-rated text humor. CGA required.
❒ **NASTY GIRL (435)** - The name says it all.... CGA required.
❒ **X-RATED DIGI-PICS (436)** - Some lovely ladies are automatically scanned. CGA required.

BUSINESS

❒ **EZ-FORMS Rev. C.24 (66)** - Menu driven forms generator, many skeleton forms.
❒ **EASY PROJECT V1.2 (440)** - Complete project management system. Excellent.
❒ **REAL ESTATE ANALYST (83)** - Menu driven, mortgages, interest, etc.
❒ **PERSONAL FINANCE MGR V3.0 (68)** - Checking & savings accounts, etc.
❒ **SHARE-TAX/1040 V 87.1 (434)** - Does 1987 computation & prints out tax returns.
❒ **BUSINESS LETTERS (303 & 304)** - (2 disk set) 650 types of business letters.
❒ **MR. BILL V3.2 (311 - 312)** - (2 disk set) Time & billing package . Products or services.
❒ **ESTIBID (313 - 317)** - (5 disk set) Estimating program for manufacturers & contractors.
❒ **RENTAL PROPERTY (318)** - Keeps track of rental activity. Archived files.
❒ **SLICWORKS (321)** - Framework clone. Database, spreadsheet, word proc., & comm.
❒ **SALESEYE V 2.3 (443)** - Sales and business contacts program.
❒ **CASELOAD V1.3 (447)** - Lets attorneys have current status reports of individual caseloads.
❒ **FINANCE MANAGER V4.0 (77)** - Accounting package for business or personal finances.
❒ **SOAR V1.92 (449 & 450)** - (2 disk set) Accounts receivable program.

COMMUNICATIONS

❒ **QMODEM V3.1 (293 & 294)** - (2 disk set) Good full featured modem program.
❒ **PROCOMM V2.42 (53 & 54)** - (2 disk set) Menu driven, still one of the best.
❒ **EQUAL PARTNERS V1.11 (418)** - Transfer data from 5.25 to 3.5 systems via a serial port.

DATABASE

❒ **FILE EXPRESS V4.01 (33 & 34)** - (2 disk set) Menu driven, easy to use database package.
❒ **WAMPUM V3.1 (37 & 38)** - (2 disk set) Menu driven dBase III clone. Knowledge of Dbase suggested.
❒ **PC-FILE + V2.0 (493/495)**-(3 disk set) Full featured database; help screens, menus, etc.
❒ **DBASE III PROGRAMS (348)**- Genealogy, Disk cataloging & more. DBASE III required.
❒ **DBASE III UTILITIES (349)** - Misc. programs & utilities. DBASE III required.

EDUCATION

❒ **PIANOMAN (4 & 5)** - (2 disk set) Makes your PC a music synthesizer, contains tunes.
❒ **FASTYPE V2.1 (120)** - Typing tutor from beginner to advanced. CGA required.
❒ **BEGINNING SPANISH (121)** - Vocabulary, phrases, & words. Basic required.
❒ **THE WORLD (127)** - Display maps of the world. CGA required.
❒ **FUNNELS & BUCKETS V 2.0 (130)** - Great learning game for kids. Ages 5 - 10.
❒ **ERYN'S ABC'S (131)** - Teaches alphabet & numbers. Ages 2 - 6. Basic required.
❒ **AMY'S FIRST PRIMER (133)**- Alphabet, Numbers, etc. Ages 4 - 8. CGA & Basic required.
❒ **POLYGLOT V6.01 (139)** - Vocabulary builder. Grades 7 - college. Excellent.
❒ **ANIMAL MATH (181)** - Count objects, add, subtact. Ages 4 & up. CGA required.
❒ **HANGMAN (91)** - Choose your level of play.
❒ **MATHWHIZ (188)** - Teaches various math operations. Ages 5 & up. Basic required.

EGA PROGRAMS

❒ **EGA RISK (216)** - The game of world domination. Also contains EGA Roids.
❒ **EGA UTILITIES/1 (260)** - EGA palette setting, change fonts & size of letters, etc.
❒ **EGA DEMO PROGRAMS (353 - 358)** - (6 disk set) Misc. self-running demo programs.

GAMES

❒ **SLEUTH V4.1 (89)** - Murder mystery game similar to the board game "CLUE".
❒ **BLACKJACK (95)** - Advanced blackjack game with tutor, multiple players. Great for Vegas.
❒ **MONOPOLY V6.7 (106)** - Just like the board game, 2 to 4 players. CGA required.
❒ **DUNGEONS & DRAGONS V1.1 (205)** The Classic Game. Can you survive?
❒ **LAS VEGAS (116)** - Craps, Roullete, Poker, & more. CGA req., Basic on some.
❒ **3D CHESS V1.01 (215)** - Excellent chess game. Switch between 2D & 3D.
❒ **SAM SPADE V1.0A (226)** - Great detective game. Also contains Mazegame; creates mazes.
❒ **SOLITAIRE (211)** - 4 games. CGA required.
❒ **SUPER PINBALL (212)** - 5 games. CGA req.
❒ **WORDPLAY (367)** - Wheel of Fortune clone. Has everything but Vanna and Pat. CGA req.
❒ **MAHJONG (407)** - Fascinating Oriental card game. CGA required.

GRAPHICS

❒ **HIRES RAINBOW V1.0 (64)** - Full featured paint package. CGA required.
❒ **PRESENTATIONS V2.0 (446)** - Make demo programs & presentations.
❒ **LIGHTING PRESS (266)** - Printmaster Plus clone, flyers, greeting cards, graphics, etc.
❒ **CALENDAR CREATOR (350)** - Create & print your own monthly calendar of events.
❒ **PRINTMASTER GRAPHICS (319)** - 3 librs. of graphics for Printmaster Plus. Over 100.
❒ **PRINTSHOP GRAPHICS (320)** - 3 more libraries of graphics for Printshop. Over 100.
❒ **STREETS ON A DISK (437)** - **DEMO** Program. Map of LA county. CGA or EGA req.
❒ **EGA TROPICAL FISH (427)** - An aquarium on your computer screen. EGA & CGA required.
❒ **DANCAD 3D V2.0B (424 & 425)** - (2 disk set) Advanced 2D/3D drafting program. CGA, 2 drives and 640K required.
❒ **CAD CURVE DIGITIZER (339 &340)** - (2 disk set) Excellent CAD program. CGA or EGA required. **Hercules mono version (disk #'s 351 & 352).**

LANGUAGE

❒ **"C" TUTOR (22 & 23)** - (2 disk set) 14 lesson tutorial, learn to program in 'C ' language.
❒ **"C" LANGUAGE V2.1 (299 & 300)** - (2 disk set) Complete programming environment. Source, compiler, samples.
❒ **BASIC TUTOR (325)** - Learn to program.
❒ **TURBO PASCAL TUTOR (20)** - 17 lesson tutorial with samples, etc.

MISCELLANEOUS

❒ **STRESS & SHRINK (74)** - Stress - stress test. Shrink - personality analysis.
❒ **HORSERACING (343)** - Handicapping for thoroughbreds.
❒ **ASTROLOGY (155)** - Horoscope & Astrology programs. 1 requires Basic.
❒ **RECIPE MANAGER V1.1 (156 & 157)** (2 disk set) Recipe management system.
❒ **LOTTO (159)** - Advanced techniques to win big bucks. $$$.
❒ **FREEWILL V1.0 (171)** - Valid WILLS for Calif.
❒ **FASTBUCKS (191)** - Menu-driven home finance package. Easy to use.
❒ **BIORHYTHM (194)** - Calculate & print your own monthly charts.
❒ **TENANTS RIGHTS (196)** - The 'Bible' for California renters. **A MUST.**
❒ **MEALMATE (332)** - Nutritional database for meal planning.
❒ **LITTLE BLACK BOOK (441)** - Creates pocket sized address book.

PRINTER UTILITIES

❒ **IMAGEPRINT V1.2 (44)** - Makes 9 pin Epson compatible printers do letter quality print.
❒ **LASERJET FONTS (327)** - Over 30 downloadable fonts for the Laserjet Plus/II.
❒ **LASERJET FONTS/UTILITIES (328)** - More fonts & a utility to capture graphic screen images from other programs. Also contains 'Pamphlet'.

SPREADSHEET

❒ **LOTUS 123 PROGRAMS (28 - 32)** - (5 disk set) Contains as many applications and utilities that we could find. Requires Lotus 123 .
❒ **LOTUS 123 TUTOR (177)** - Beginning tutorial for Lotus 123. Requires Lotus 123.
❒ **AS EASY AS V3.0 (302)** - LOTUS clone. 52 column sheet, graphing. CGA required.

UTILITIES

❒ **DISK COMMANDO V2.0 (218 & 219)** - (2 disk set) Norton's Advanced Utilities Clone.
❒ **SIM-CGA (220)** - Great for most programs that need color (CGA) to run.
❒ **DOS HELP (255)** - Help screen for DOS commands & functions. For DOS 3.XX.
❒ **DOS TUTORIAL V4.2 (256)** - Menu driven tutorial that teaches DOS commands. A MUST.
❒ **BEGINNERS (257)** - The basics of using most public domain/shareware software.
❒ **PC MAGAZINE (277)** - Over 30 great utilities, rated by PC magazine.
❒ **LIST V6.2A (274)** Replace DOS 'TYPE' command. Best utility for viewing PD Documentation.
❒ **AUTOMENU V4.01 (280)** - Access programs, batch files, etc. from one easy menu system.
❒ **POWERMENU (419)** - Xtree & Sidekick clone rolled into 1. Hard drive required.

WORD PROCESSING

❒ **SIDEWRITER (6)** - Just like the commercial program SIDEWAYS. Great for Lotus 123.
❒ **RELIANCE MAILING LIST V2.0 (161)** - Easy to use, menu-driven, labels, mail-merge, etc.
❒ **PC-WRITE V2.71 (9 & 10)** - (2 disk set) Full featured word processor, spelling checker, on-line help screens.
❒ **LETTERHEAD (69)** - Create & print your own letterhead on letters or envelopes. Epson or IBM compatible printer required.
❒ **PC TYPE + (373 - 375)** - (3 disk set) A powerful word processor with full screen editing, etc.

ORDER FORM

____	____	____	____	____	____
____	____	____	____	____	____
____	____	____	____	____	____

NAME_____
ADDRESS_____
CITY_____ST___ZIP_____
PHONE (___) _____

Minimum order 3 disks.
1 **FREE disk for every 10 ordered**

# of disks____@ $2.99 = _____
Calif. Sales Tax (6.5%) = _____
Shipping & Handling = 2.00

TOTAL = $=====

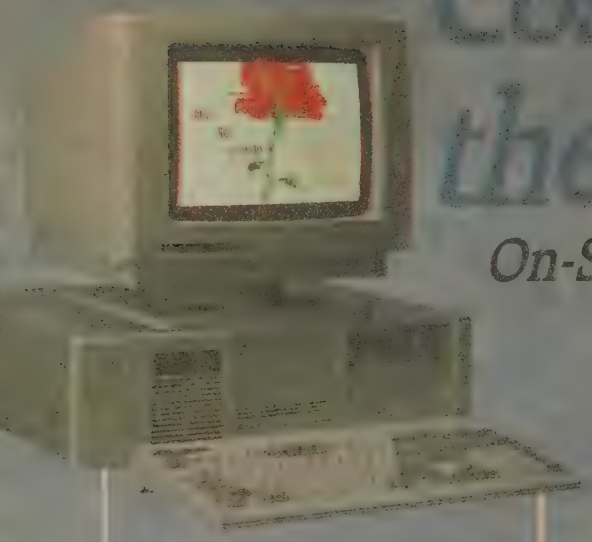
Mail order form & check or money order to:

PC Plus Consulting
1466 Springline Drive
Palmdale, CA 93550
(805) 273-0300

Call or write for free catalog.
We are open M-Sat, 9 am - 5 pm.
Available on 3.5" media - $3.99 ea.
We do not accept VISA, MC or COD's.

Cost and Quality . . . the Rose Hill Compatibles!

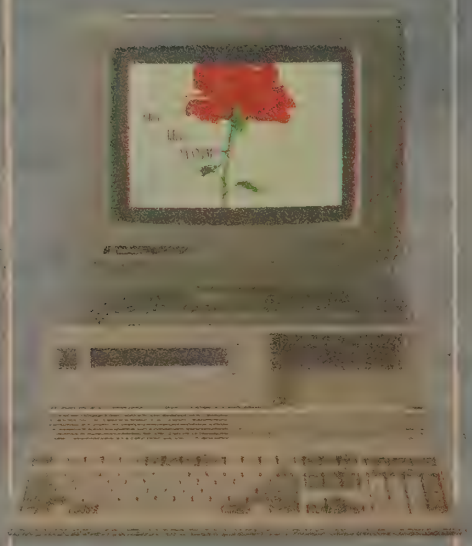
On-Site Service and Leasing Available!



ATROSE MODEL 1800

IBM AT Compatible
80286, Runs at 6 or 8MHz
512K Expandable to 1 MB
Floppy/HD Controller
1.2 MB Floppy Drive
192 Watt Power Supply
AT Style Keyboard
200 Page Manual
48 Hour Burn-In & Test
One Year Warranty
MADE IN U.S.A.

UNIT PRICE
$875.00
(Add $125 for 10 MHz)



ATROSE MODEL 1700

IBM AT Compatible
80286, Runs at 8 or 12MHz
1 MB on Board
Floppy/HD Controller
1.2 MB Floppy Drive
192 Watt Power Supply
AT Style Keyboard
Small Footprint
200 Page Manual
48 Hour Burn-In & Test
One Year Warranty
MADE IN U.S.A.

UNIT PRICE
$1,275.00

XTROSE SUPER TURBO

IBM XT Compatible
4.77 or 10MHz
AT JR. Style Case
Lock, Reset & Turbo Switch
256K on Board, Expandable to 640K
360K Floppy Drive
Floppy Adaptor
8 Slots
150 Watt Power Supply
On Year Limited Warranty
Full Documentation
Burned In & Tested

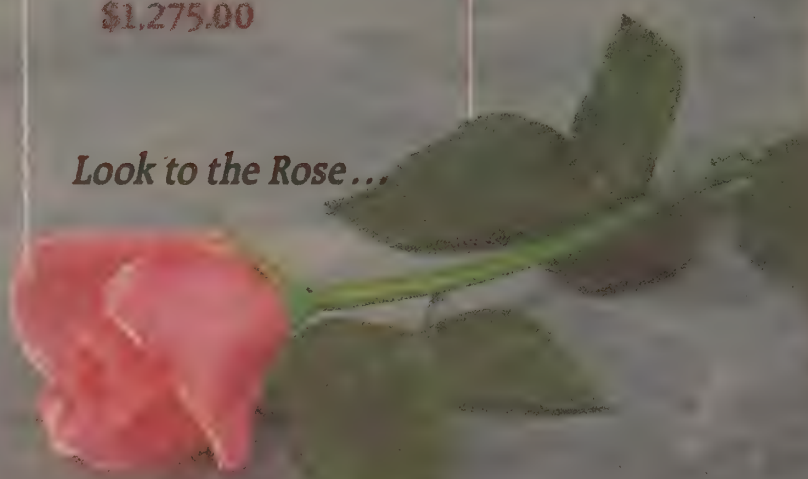
UNIT PRICE
$399.00

386 ROSE MODEL 81 TOWER SYSTEM

80386, Runs at 20 MHz
1 MB Expandable to 2 MB on Board
LSI Logic Support to 16 MB 32 Bit memory
PC AT BUS Timing for Adaptor Compatibility
Socket for 80387
Socket for 80287
EGA Graphics on Board
Support 640 × 480
System & EGA BIOS Executed in 32 Bit Memory
EGA BIOS Supports Extended Video for Multisync
32 Bit Slot
2 Serial Ports
2 Parallel Ports
Floppy/HD Controller
1.2 MB Floppy Drive
Enhanced RT Style Keyboard
200 Watt Power Supply
Burned-In & Tested
Documentation
One Year Limited Warranty
MADE IN U.S.A.

UNIT PRICE
$2,499.00

Look to the Rose . . .



ROSE HILL SYSTEMS

4865 Scotts Valley Drive Scotts Valley, CA 95066
CA Call: (408) 438-3881 Outside CA, Call: (800) 248-ROSE Tech Support, Call: (408) 438-3939

No Surcharge for VISA or MasterCard. TERMS: Cash, VISA, or MasterCard, C.O.D. and Company Check on Approval.
Because of our Low Prices, all sales are final. A 15% charge will be applied for all unauthorized returns. Prices subject to change without notice.
IBM, AT, and XT are registered trademarks of International Business Machine Corporation. NEC Multispeed EL is a registered trademark of NEC Corporation.

386 ROSE MODEL 3800

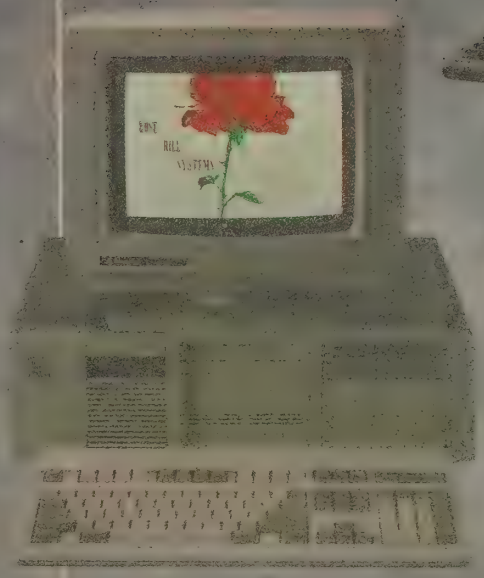
80386 Runs at 20MHZ
SI = 21.5
1 MB Expandable
to 2 MB on Board
Supports 16 MB
32 Bit Memory
PC AT BUS Timing for
Adaptor Compatibility
Socket for 80387
Socket for 80287
EGA Graphics on Board
Supports 640 × 480
Multisync Extended
Graphics
System & EGA BIOS
Executed in
32 Bit Memory
32 Bit Slot
2 Serial Ports
2 Parallel Ports
Floppy/HD Controller
1.2 MB Floppy Drive
Enhanced RT Style
Keyboard
200 Watt Power Supply
Burned In & Tested
Documentation
One Year Limited
Warranty
MADE IN U.S.A.

UNIT PRICE
$2,199.00

NEC MULTISPEED EL

(2) 3.5" Floppies
V30 CPU 9.54MHz
640K
6 Built-In Programs
Including DOS
Compatible with
Standard PC Software
NiCd Battery Pack
One Year Limited
Warranty
Options include:
2400 BD Modem
20 MB Hard Disk

UNIT PRICE
$1,899.00



ATROSE 1800B

IBM AT Compatible
Runs at 10MHz 0 Wait
512K Expandable
to 1 MB
Floppy/HD Controller
1.2 MB Floppy Drive
AT Style Keyboard
192 Watt Power Supply
2 Serial Ports
2 Parallel Ports
Reset Switch
200 Page Manual
48 Hour Burn-In & Test
One Year Limited
Warranty
MADE IN U.S.A.

UNIT PRICE
$1,149.00

386 ROSE MODEL 3000

80386 16 MHz
1 MB with 64K
Ram Cache
LEDs for Speed, Power,
and H.D.
8 Expansion Slots
Floppy/HD Controller
1.2 MB Floppy Drive
AT Style Keyboard
Front Panel Reset
200 Watt Power Supply
48 Hour Burn-In & Test
One Year Limited
Warranty
MADE IN U.S.A.

UNIT PRICE
$1,799.00

SYSTEM OPTIONS:

Mono System, add . . . 125.00
Color System, add . . . 325.00
EGA System, add 525.00

XT HARD DISKS
20 MB System, add . $299.00
30 MB System, add . $325.00
40 MB System, add . $399.00

AT HARD DISKS
20 MB System, add . $250.00
40 MB System, add . $450.00
60 MB System, add . $575.00
80 MB System, add . $950.00
150 MB System,
add $2,100.00

*Send for Rose Hill Catalog * Hundreds of Other Items!*

Service Contracts & Commercial Leasing Available

We Specialize In Property Management Systems

Great Deals From Professional Computer Management

SPECIAL ON HP LASERS!
LaserJet II $1599

GREAT CLONES

IBM AT COMPATIBLE
0 Wait State, 8-10 Mhz, 1 Meg, 1.2 MB Drive, Keyboard, WD Controller, Graphics Card & Monitor

$1,050

IBM XT COMPATIBLE
XT Turbo, 4.77-10 Mhz 640K on Board, (1) 360K Drive, AT Style Keyboard, Graphics Card & Amber Monitor

$550

IBM

PS II Model 30-002/021	$1230/1625
PS II Model 50-021	2600
PS II Model 60 44 MB/70 MB	Best Price
PS II Model 80 44 MB/70 MB	Best Price

COMPAQ

DESKPRO MODELS:	
386/20 MHz 60/130/300 MB	$ Best Price $
386 40/70/130 MB	4295/4995/5895
286 Model 1/20/40 MB	1850/2295/2550
PORTABLES:	
PORTABLE 386/40 MB	$5595
II Model 4	2595
II Model, 2, 2 Dr., 256K	1895
III Model 20/40 MB	3495/3995

TANDON

Targa-20, 1 Meg, 20 MB	$1699
Targa-40, 1 Meg, 40 MB	2140
Pac 286	Best Price

TOSHIBA

Laptop T1000/1200	$775/2350
Laptop T3100/20 MB	2950

HARD DISKS

Seagate 20/30 MB w/controller	$255/315
Seagate 40 MB for AT	425

MONITORS

Amdek 410A	165
Samsung EGA Monitor	365
NEC Multisync *ALL MODELS*	$ Best Price $

PRINTERS

Epson LQ850/LQ1050/LQ2500	$ Best Price $
Epson FX 286E/86E	Best Price
Citizen Premier 35	455
Toshiba 321SL	495
Star NX1000 w/tractor	250

HEWLETT PACKARD

LJ II	$1599
LJ 500+	3295
1 MB Mem Exp HP/Compatible	369/329
2 MB Mem Exp HP/Compatible	699/629

Wholesale Prices For Dealers

Professional Computer Management
843 Howard Street · San Francisco, CA 94103
(415) 546-3833
Prices subject to change without notice.

Novell Network Specialists

Baby Bells Can Provide Network And Electronic Mail Services, Says Judge Green

Regional Bell Operating Companies (the local telephone companies, also known as RBOCs) can now operate many of the businesses from which they were previously prohibited. These businesses, including most of the services necessary for major network administration, will allow the RBOCs to operate their own huge digital data networks and thus offer services to large companies with many offices, which up until now had to be provided by the customers themselves or by value-added resellers. For example, many large corporations have offices spread over a city or a state, and transmitting data between offices has usually consisted of leasing private data lines and buying expensive equipment for each office. Now, companies can go to the local RBOC and lease the services and equipment directly from them. Of course, this will also mean that the RBOCs will have to support the services that they sell.

Judge Harold Green, who oversaw the breaking up of AT&T and has been the primary magistrate in the ensuing multitude of cases, also gave the RBOCs the right to operate their own voice and electronic mail services. Many people expect the RBOCs to begin offering advanced voice store-and-forward services, which would make home answering machines almost completely obsolete. These services could provide different "voice mailboxes" for each person in a house, would never be accidentally erased, and could be retrieved from any telephone in the world. If the RBOCs get into electronic mail, the major e-mail services such as MCI Mail might become superfluous, since it is likely that an RBOC e-mail service would have hundred times more users than a commercial service.

The judge made it clear, however, that the RBOCs were still prevented from operating information services due to the great potential for an RBOC to become an information monopoly if they controlled both the information and the access to the information. Many of the RBOCs would dearly love to become information providers. They give examples of services they would like to render, but from which they are still prohibited, such as electronic yellow pages. However, the judge's decision shows that he has become more willing to let the telephone companies become providers of computer-related convenience services and site-interconnection services.

Unisys Will Use UNIX And SPARC Chip In Future Machines

AT&T and Sun signed agreements last month with Unisys, strengthening its ties and giving Sun a boost in its efforts to standardize UNIX around Sun's new RISC architecture called SPARC. Unisys, the third largest computer company in the U.S. (after IBM and DEC), has become heavily reliant on UNIX systems in the past few years and wants to expand its options for the future. The move aroused anger in some of the companies who have been complaining in the last few months that AT&T is becoming too closely aligned with Sun and that it is not living up to its promise of UNIX being an open operating system.

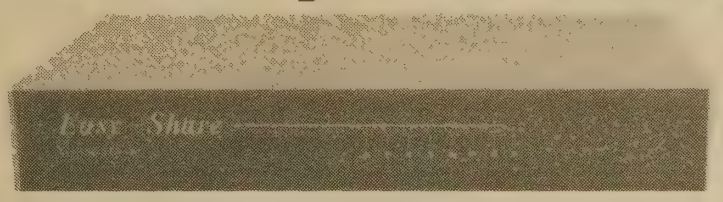
Unisys says that its SPARC systems will complement its current UNIX offerings. Currently, UNIX systems account for over $500 million a year for Unisys, and its agreements with AT&T and Sun are expected to help continue their dominance in the UNIX market. Unisys has a very large portion of the government UNIX market, and hopes that that market will move towards the SPARC architecture as AT&T and Sun set the standards for UNIX on that chip. One of the features of the SPARC chip that attracted Unisys was that it was available from many different chip manufacturers and that SPARC chip manufacturers will add features to the chips they produce to make them competitive with their rivals. After Unisys' announcement, LSI Logic of Milpitas announced that they will become the fourth manufacturer to make SPARC chips.

Apple Buys Network Innovations Corporation To Expand Networking And SQL Offerings

In a quick move into the mainframe-connectivity market, Apple last month bought Network Innovations Corporation, a small company in Cupertino with a great deal of software. Network Innovations made a splash in January by announcing its CL/1 package that allows Macs and mainframes on the same network to pass data and database procedures back and forth. CL/1 works over a variety of networks such as IBM's SNA and APPC/LU 6.2, DEC's DECNet, and Apple's LocalTalk. SQL is also thee data language which will be supported by IBM's forthcoming OS/2 Extended Edition, as well as products from companies such as Microsoft and Ashton-Tate.

Apple recently announced its intention for Macintoshes to be able to share data with DEC systems, and CL/1 was one of the prime movers in that market. By acquiring Network Innovations, Apple now has much more of the technology necessary for achieving a high level of integration with DEC's VAX products. The fact that CL/1 also

It's Easy To Share

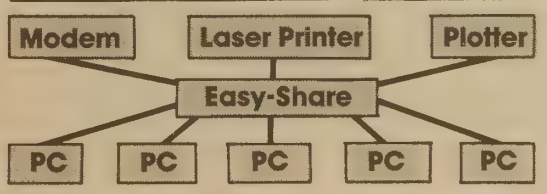


2 Year Warranty

Easy-Share
The Peripheral Sharing Solution

Now you can quickly and easily share your printers, plotters and modems with your computers. Easy-Share automatically buffers and routes your data to the desired output device, eliminating cable or diskette swapping and manual switchboxes.

Easy-Share doesn't require any special software to operate. It easily connects to your computer's serial or parallel ports and is compatible with all of your application software.



• Share up to 8 PCs and peripherals with Easy-Share

Easy-Share Gives You:

Easy Configuration
You can configure each port as "input" or "output"–allowing you to connect 7 computers to 1 printer, 6 computers to 2 printers, or any combination of up to 8 ports. And each port can be configured independently for Parity, Wordlength, Baud Rate, Input/Output operation as well as for "handshake" method (DTR/XON).

Easy Operation
Easy-Share automatically transfers data and performs any required switching. There are NO OPERATOR CONTROLS or switches to set. And, any or all "on-line" users can send documents at the same time. Buffer space is automatically allocated to insure maximum efficiency.

Easy Expansion
Easy-Share has 4 serial ports standard, and is expandable up to 8 ports. Plug-in interface cards allow for serial or parallel expansion. Plus, Easy-Share comes standard with 256K of RAM and is expandable to 1 megabyte of internal onboard RAM!

PLUS THESE OTHER FEATURES, FREE!

Bi-Directional Mode
Easy-Share supports a special bi-directional mode allowing the use of Modems, Plotters, or even the exchange of files between computers (requires user provided file exchange program).

Advanced Software Command Support
Easy-Share supports advanced software commands, including: Number Of Copies, Pause For Paper Change, Printer Select, Bi-Directional Modem Support, No Timeout (for Accounting Audit Trail Use), and others.

CALL TODAY AND SEE why Fortune 1,000 companies all over California have made Easy-Share their peripheral sharing solution.

FIND OUT HOW EASY (and inexpensive) it can be to share your peripherals in your own company with Easy-Share!

CALL NOW
(408) 748-9330

TANSTAAFL Manufacturing, Inc.
1800 Wyatt Drive, Suite 6
Santa Clara, CA 95054
(408) 748-9330

integrates with IBM mainframes makes the deal all that much better, according to many Apple-watchers. This is the first company which Apple has bought outright, and many felt that this will help Apple be able to support all the technologies that Network Innovations developed at once.

Many Macintosh industry leaders are already lining up behind CL/1. At the DEC-specific DEXPO show in February, Lotus, Ashton-Tate, Blyth, and ACIUS all showed applications retrieving and modifying data from VAX databases. Although all programs were in preliminary form, Network Innovations was able to line up the big hitters in the market and show them all using CL/1 within a month of the product's release. Apple hopes to push CL/1 as a new industry standard for SQL access; other vendors are skeptical that it will become a standard, but think that it will certainly become a major player in the burgeoning SQL field. Even if Apple is unsuccessful at making CL/1 a widely-accepted standard, it can certainly rely on the major database manufacturers making their products be able to conform to the CL/1 standard.

Network Innovations has been working to attract Apple's attention in the last few years. For example, its first program to use CL/1 was an interface between Apple's *HyperCard* and a VAX database. The link, announced in January, lets the user ask questions in SQL format from a window in *HyperCard*. More important, however, is the fact that the driver is an addition that users can add to their copy of *HyperCard* so that programs that generate requests can also use the driver. For example, a program which normally just reads data out of a regular Mac data file could be very easily modified to read the data from a VAX (or, in the future, an IBM) database. Apple is likely to release a front end for this product later this year so that *HyperCard* programmers can access information from CL/1 servers through their stacks.

Network Innovations is not only a Mac company, however. It is also the developer of *Multiplex*, a PC program for accessing data from mainframes. Although its mainline product runs under MS-DOS, NI is one of the few developers who support Microsoft *Windows* fully. Its *Windows* product can exchange data with Microsoft *Excel* for the PC through the *Windows* Clipboard. This means that you can write an *Excel* macro to read data off of a remote mainframe, and have it appear correctly formatted in your spreadsheet, without having to run a conversion program. *Multiplex* has been available for about a year.

The announcement clouds Apple's relationship with Sybase, which it bought part of last year. Sybase makes a product with similar features but different implementation. Since Apple did not announce what it would do with the software that Network Innovations had developed, no one knows for sure if Apple will possibly support both methods for providing SQL service to Macintoshes.

Network Innovations says that it will continue to operate as an independent company working closely with Apple. They do not intend to move to Apple offices. Apple staff will join the board of Network Innovations. The company was privately held before being bought by Apple.

Unisys' commitment to help establish that standard make it all the more likely that other manufacturers will use SPARC in the future. Unisys hopes to start shipping SPARC systems within a year, according to the company; however, it will probably take at least two years for them to produce a solid high-end system that is as powerful as its current line.

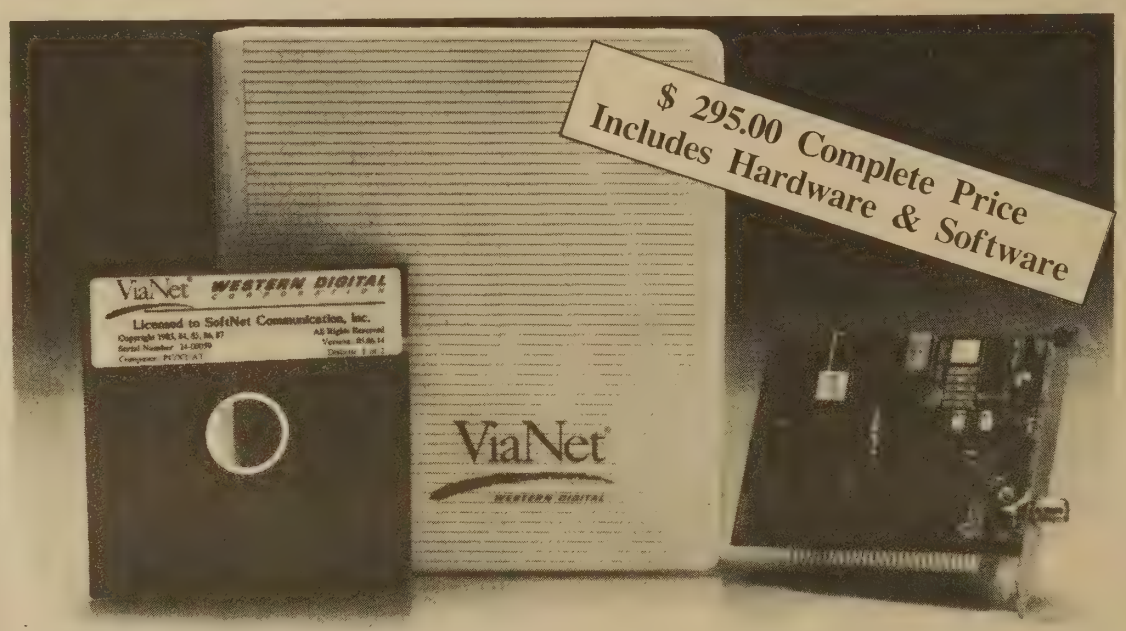
Atari Sues Micron Technology Over Higher-Priced Chips

Complaining that RAM-maker Micron Technology reneged on an order and raised its prices unfairly, Atari has filed a breach of contract and antitrust lawsuit against the Boise, Idaho company. Atari claims that Micron Technology canceled a $11.25 million order for dynamic RAM (DRAM) chips for the Atari ST computer and then offered Atari the chips at a much higher rate. The price of RAM chips has been increasing, and the supply has dropped, since the US forced Japanese manufacturers in 1986 to sign an agreement to sell their RAM chips at a higher price.

Atari claims that Micron Technology has a virtual monopoly over DRAM manufacture. American companies are restricted in the number of DRAM chips they can buy from Japan, and there are really only two DRAM manufacturers in the U.S. (Micron Technology and Texas Instruments). In its suit, Atari complains that Micron Technology is restricting Atari's business by being able to charge whatever it wants for the DRAM. Although Atari has been active in trying to change the federal restrictions on the number of chips that can be imported, they have been unsuccessful due to many factors. According to lawyers at Atari, this is one of the reasons that they brought the suit against Micron Technology.

Although American chip companies have been able to make more money selling their chips, many computer manufacturers are starting to complain bitterly that the agreement has forced them to increase the cost of their computers (and in some cases limit the number produced) since the components are costing more and are harder to buy. Atari's suit is the first one claiming antitrust violations against an American chip maker. Other manufacturers have been hesitant to take such a step because they feel that suing a major supplier which has a stranglehold on the DRAM market

ViaNet & KAL1000
Local Area Network
The Perfect Pair!!!



The performance leader of all LAN systems based on Western Digital's ViaNet (R) software.

- 2 Mega bits/sec
- Serverless, fully distributed
- Supports DOS 3.xx
- Can share All resources
- Unix-like DOS shell
- Password Protection
- File & Record lock
- Easy to install & use

SoftNet Communication, Inc.

Call Toll Free!
(800) 533-1157
15 Hillcrest Drive, Great Neck, NY 11021 (516) 829-6536

You Can Whisper About How Good This Printer Is.

That's because Toshiba's P321SL Printer will raise your productivity, not your voice. It has a selective quiet mode and standard features you will rave, but not yell about. Taking full advantage of a 24 x 42 character matrix that's unequaled in the industry, other 24-pin printers, (not to mention any 9-pin relatives), will have to play follow the leader.

Toshiba built it because you asked for it.

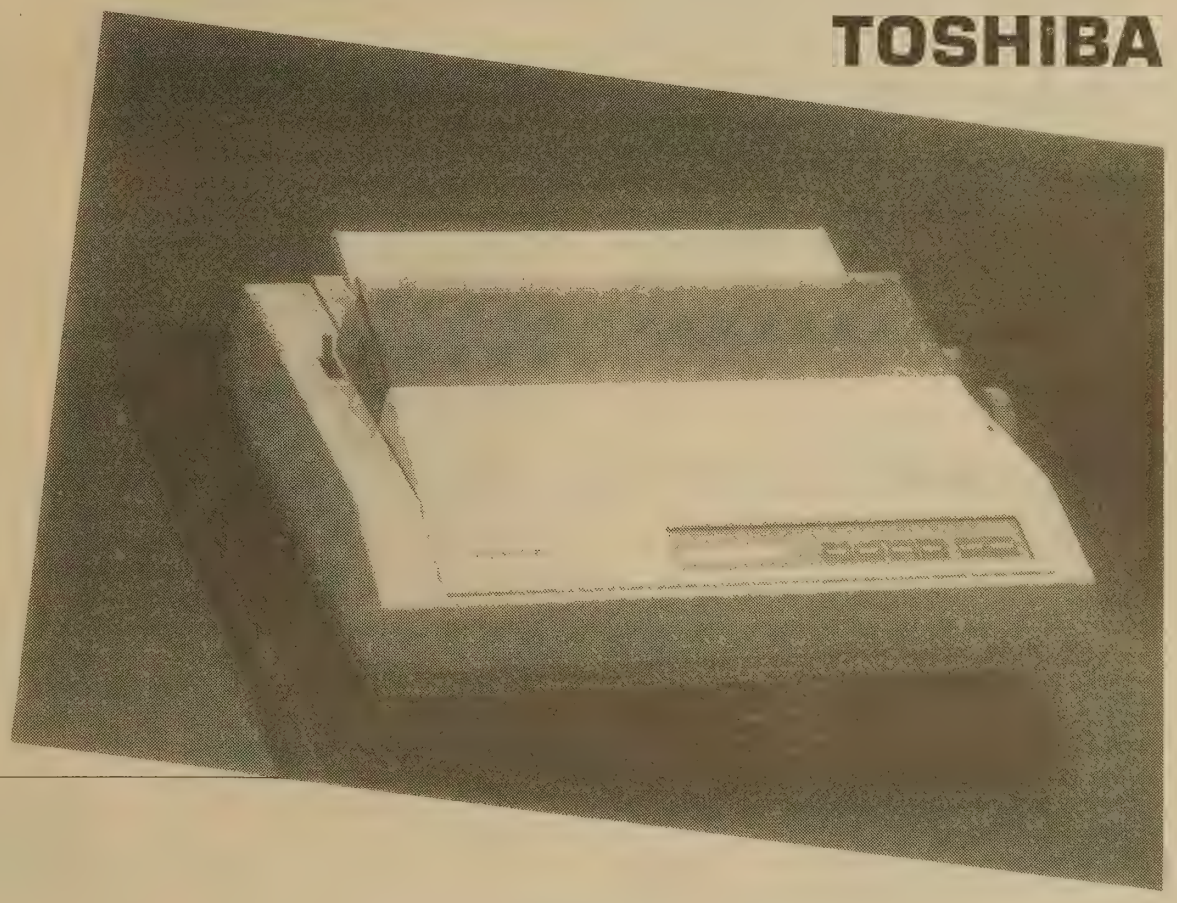
"MAKE IT EASIER TO USE." Say goodbye to the DIP switches in your life with front panel selection of type fonts, pitch, emulation, quiet mode and more.

"BE SURE IT HANDLES LOTS OF SOFTWARE." The P321SL handles practically any software, so you won't have to pay extra for exotic print drives. With a finger-tip you can choose from three standard emulations: IBM PROPRINTER, QUME SPRINT 11 or TOSHIBA P351. You can create truly unique text with the selection of five resident fonts, two more via the front leading card slot and two more from disk.

"PROVIDE ENHANCED PAPER HANDLING." Forget about paper changing hassles. The fan-fold bypass feature lets you feed single sheets without pulling out the continuous form paper. Plus, with the auto-load lever you can position either type of paper quickly and precisely.

"KEEP IT AFFORDABLE." For slightly more than a 9-pin model, you can enjoy the printer you've designed yourself. The P321SL retails for $749.

"GIVE IT ATTRACTIVE STYLING." At a streamlined 16.3"W x 3.9"H x 15"D and only 17 lbs., it's the heavyweight champ pound for pound. You get great graphics with resolution as high as 180 x 360 DPI. It can also use compressed print so you can put 132-column spreadsheets on convenient letterhead size paper. Toshiba is where standard features set industry standards. Consult your nearest dealer listed below to get your printer today.



Now the printer that you designed is ready at one of the dealers listed below!

Direct Computer Resources
1070 Shari Circle, #200
Concord, CA 94518
415 685-2025

Infomax Computers
1310 Mt. Diablo Blvd.
Walnut Creek, CA
415 356-6565

Winner's Circle
2618 Telegraph
Berkeley, CA 94705
415 845-4814

California Computer Options
2213 Shattuck Ave.
Berkeley, CA 94704
415 486-8292

Micro-Tech International
5835 Doyle St., Suite 101
Emeryville, CA 94608
415 658-1433

Monarch Computers
863 San Pablo Ave.
Albany, CA 94706
415 526-7741

Infomax Computers
761 E. Blithedale at the
Alpha Beta Center
Mill Valley, CA
415 929-2295

Infomax Computers
601 Van Ness Ave.
Civic Center Area
San Francisco, CA
415 929-2250

Micro Menders
81 Lansing St., Suite 101
San Francisco, CA 94105
415 543-0500

Western Computer Group
858 Burlway Road
Burlingame, CA 94010
415 340-1781

Crescent Computers
3531 Ryder
Santa Clara, CA 95051
408 738-2480

Connective Micro Systems
1257 B Oakmead Parkway
Sunnyvale, CA 94086
408 739-1170

Custer Computers
811 Castro St.
Mountain View, CA 94041
415 969-8890

ERA Electronics
4500 El Camino Real
Los Altos, CA 94022
415 948-4500

BROUGHT TO YOU BY

Gates DISTRIBUTING

The Low Price Leader

IBM AT Compatible System

The above system comes equipped with 1 drive, 640K RAM, mono monitor & card, 0 wait state, 6/10 MHz.

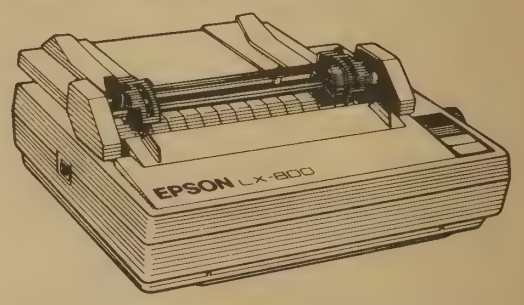
Our guarantee to you is 2 years parts (excludes labor)

From $1190

Includes EPSON LX-800 Printer

Compatibility Power
Performance Value

- Full featured, 80-column dot matrix printer for affordable performance in the home or office
- 180 CPS draft speed delivers outstanding productivity
- 30 CPS Near Letter Quality mode for enhanced output

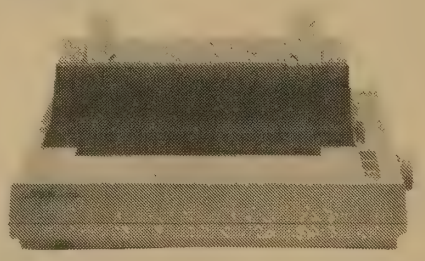


IBM PC/XT Compatible System

From $799

The above system comes equipped with 2 drives, monitor & card, 640K RAM, turbo. Warranty is 1 year parts & labor.

April EPSON® Special LQ 1050



- Fast, high resolution quality printing
- Prints 264 CPS in draft mode & 88 CPS in 12-pitch, letter quality mode
- 24-pin resolution & prints both text & graphics bidirectionally
- Both parallel & serial interfaces

Call for your best price!

We Carry All Your Major Hardware Needs!

TOKYO ELECTROLAND

FULL SALES & SERVICE OF ALL COMPUTERS

(415) 777-2100

650 Mission Street (At New Montgomery)
San Francisco

Store Hours: Mon-Fri **10:00-6:30**
Sat. **10:00-5:30**

All computer prices reflect cash discounts. We accept Visa/MasterCard on non-sale items. Prices subject to change without notice.

could prevent them from being able to buy enough DRAM to produce their computers. However, many of these manufacturers have been publicly and privately applauding Atari's suit.

Motorola Confirms It Is Working On New RISC Chip

The next Motorola CPU will not be in the 68000 family, but will be the first of a new family of RISC chips which Motorola is calling the 88000 family. The first release will be a three-chip set which will run at 17 MIPs (million instructions per second), according to Motorola. The chip set will perform both standard math as well as floating-point math, giving Motorola an advantage in the number-intensive scientific computing fields. The 88000 family uses "Harvard-style" parallel architecture, which means that the CPU knows where to look for the next set of instructions it will execute, speeding up execution significantly. Motorola emphasized that the 88000 family will not replace the 68000 family, but would open new markets to Motorola and to computer companies who use the 88000 chips in new computers. The company says that over 100 computer manufacturers are currently evaluating the 88000 chips.

Information Bill Of Rights Passes Easily In Assembly

Assembly Constitutional Amendment 36, also known as the information bill of rights, passed in the California Assembly by 57-4 last month. It now goes the California Senate for approval for the November ballot. The measure, authored by Assemblyperson Gwen Moore, prohibits unwarranted searches of computer equipment and unwarranted restrictions on computer communication; basically, it would give electronic communication the same rights and restrictions as regular communication. The bill has been widely supported by the microcomputer industry and users since it gives bulletin boards and information services the same rights as their non-computerized counterparts. ACA 36 must be considered by the Senate Judiciary and Senate Constitutional Amendments committees and the full Senate before June 30 in order to make it onto the November state-wide ballot. Assemblyperson Moore thinks that the bill may be decided by the Senate this month.

California PUC Considering Extension Of Surcharges To Finance TDD Service

The Public Utilities Commission (PUC) may extend the temporary telephone surcharges it placed in order to fund a network for deaf and other disabled people in the state. The project may run out of money very soon without an extension of funds, and the PUC is looking for other resources for money for the project. The project provides TDD and other specialized equipment for deaf and disabled people, as well as establishing a telecommunications network for people with these devices to communicate. Although residential and business customers help pay for the fund, cellular phone, mobile phone users, Centrex, and PBX users do not. The Deaf and Disabled Telecommunications Program has the strong support of the disabled community, although its existence is almost unknown by others in the state. The PUC will hold hearings on extending the fund in the near future.

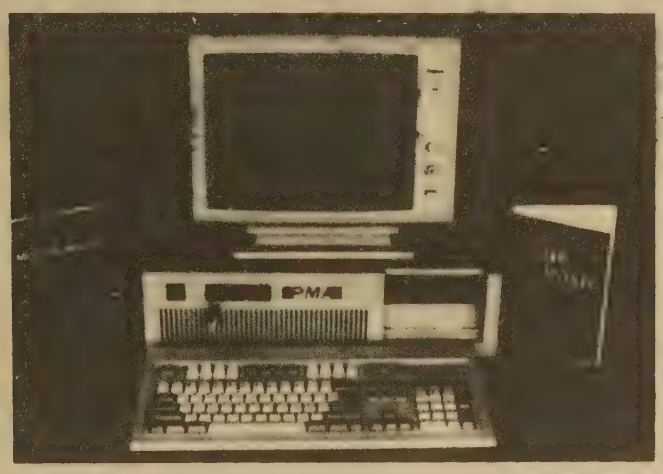
Apple Unveils CD-ROM Drive For The Macintosh

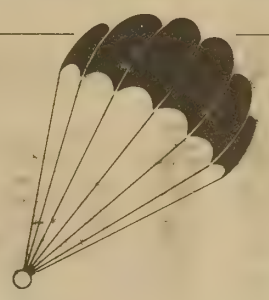
At a CD-ROM conference mostly noted for the lack of interesting announcements, Apple showed its

Find out what thousands of satisfied customers like doctors, lawyers, designers, accountants, school districts, and government agencies already know.

PMA Provides the Best Value in Personal Computing Systems

PMA's AT PC 386/20 **$3469**





Standard features:
Intel 80386 running at 20 MHz
1.2 MB floppy drive
Floppy and hard drive controller
1 MB RAM expandable to 16 MB 32-bit
Enhanced 101 keyboard
2 serial ports and 2 parallel ports
200 watt power supply
Real time clock and calendar
8 expansion slots (1-32 bit, 6-16 bit, 1-8 bit)
EGA color system
with EGA monitor and EGA display adapter, and a 40 meg 25 ms access hard drive

This system is highly effective in research and development applications. CAD/CAM data base management and desktop publishing. PMA's 386/20 is compatible with industry standard software and will run MS OS/2 when it becomes available.

PMA's AT PC-286/10 **$1349**

This 286/10 system is one of the highest performance personal computers available. It's high speed operation is ideal for software development, local area networks, CAD/CAM and desktop publishing applications as well as business office operations. The PMA 286/10 is compatible with industry standard software and will run MS OS/2 when it becomes available.

Standard features and options
Intel 80286 running at 10 MHz
0/1 wait state
1 MB of RAM, expandable to 16 MB
1.2 MB floppy drive
Floppy and hard drive controller
Enhanced 101 key keyboard
1 serial and 1 parallel port
200 watt power supply
Real time clock and calendar
8 expansion slots (6-16 bit, 2-8 bit)
Monochrome graphics system
with high resolution monochrome monitor
Monochrome graphics display adapter
(720 x 348) with a 20 MB 65 ms hard drive

PARACHUTE MICROSYSTEMS AMERICA
897 Independence Avenue 5-E
Mountain View, CA 94043
Inside California (415) 968-5755
Outside California (800) 822-9922

THE PMA GOLD SEAL OF EXCELLENCE
• 100% Guaranteed
• Zero Defects
• Factory Tested
• Highest Quality

We supply systems to NASA, Lawrence Livermore Labs, University of California, and more...

"We make the Best Computers Better"

IBM XT's, AT's, COMPATIBLES, LAPTOPS AND PRINTERS
SCANJETS • LASERJETS • MONITOR PROJECTORS • TOSHIBA T3200 & T5100

RENTALS & RENT TO OWN

Daily • Weekly • Monthly & Quarterly Rates
FOR MORE INFORMATION REGARDING OTHER PRODUCTS AND SERVICES PLEASE CALL

Computertime

San Francisco
3 Embarcadero Center
Corner of Clay & Davis
397-6776

San Rafael
1115 Third Street
Between A and B Streets
459-8080

new CD-ROM drive for the Macintosh and announced that it expects the drive to help spur interest in *HyperCard*. The drive, called the CD SC, attaches to the Macintosh through the high-speed SCSI connector or to an Apple II through an add-in SCSI connector. To speed sequential data access from the drive, Apple included a 64K RAM buffer in the drive. Unlike many of the CD-ROM players available for the IBM PC, the CD SC allows you to put the CD-ROM disks in the front of the drive, meaning that other devices (such as a Mac) can be stacked on top of the drive. The drive will be compatible with the High Sierra file format later this year, giving users access to many of the titles already available on CD-ROM drives for other computers.

The CD SC will also be compatible with AppleShare so that many users on a network can access the data in the drive from their own computers. The CD SC can also play standard audio CDs, so you can use it as a musical device when you are not using it for reading data. The drive comes with jacks for external amplifiers and speakers, and has a headphone jack for personal listening. It will come with a desk accessory that lets users play the drive in audio mode while they are using their Macs for other tasks.

Apple said that this will help sell the CD SC into the educational market where Apple already has a strong foothold. At the same time as it announced the CD SC, it also announced a server card that allows Apple IIs to be part of an AppleTalk network. Although there has not been much business demand for this, the educational market has been pressing for an Apple networking solution to the tens of thousands of Apple IIs that are used by school systems. Since the CD SC can be shared over an AppleShare network, a school with networked Apple IIs and Macs can share the CD SC among many computers. Apple hopes that this will lead more schools to buy Apple IIs, since it will now be easier for school administrators to connect the systems and share expensive devices.

The drive will cost $1,199 and will be available in May. A version of *HyperCard* which can read from the drive will also be available at that time. The capability to read High Sierra disks will not be available until later in the summer, according to Apple. Other products for the CD SC, such as the *Grolier Electronic Encyclopedia*, were also announced at the CD-ROM conference.

RIPS Signs PostScript License With Adobe

Raster Image Processing Systems (RIPS) signed an agreement with Adobe allowing RIPS to distribute PostScript with its laser printer controller boards. The agreement is for a paid-up, royalty-free license to PostScript and allows RIPS to describe its page description language as compatible with the PostScript interpreter. In its announcement, however, RIPS president Lynn King stated that "We feel it's important to maintain the integrity of the PostScript language standard, although we don't recognize Adobe Systems' right to copyright the PostScript language command set." RIPS markets boards which allow laser printers to print PostScript documents. Its boards, which can reside either in a PC or in the laser printer itself, run at up to 30 times as fast as standard PostScript printers, and averages at least 10 times faster, due to RIPS proprietary chip technology. RIPS markets its boards to printer manufacturers and resellers. RIPS, 303/530-2910.

Virus Mania

Computer viruses have become the biggest computer news item in the non-computer press in the last few months. A computer virus is a small program which acts like a biological virus: they reproduce themselves and are often undetected by the host (usually a disk). Some of the reports started last fall when an MS-DOS virus that erased disks was found at Lehigh University. More recently, a Macintosh virus that displayed a message of peace has made headlines across the country.

Now people are selling and giving away programs that help detect and kill computer viruses. However, many computer security experts question the use of these programs, since there are dozens of ways that a virus can be placed in a computer and, since they have only recently become popular, people inventing the viruses have barely started showing their expertise in developing "clever" viruses. In fact, one program that supposedly helped rid computers of viruses contained a virus itself, placed there by someone other than the program's author. In another case, a supposedly harmless virus was accidentally distributed by a commercial software company in one of its products.

Although there have been no known widespread instances of destructive viruses, it is unlikely that people will know about them until it is too late. Many viruses show their presence at a pre-defined date or after a person has performed a specific action a certain number of times. When a distinctive virus does attack the computer market, it is likely to bring another round of articles in the newspapers since so much information is now stored on personal computers.

Apple Looking To Become A $10 Billion Company

While Apple is moving towards its first $5 billion sales year within the next two years, its top brass is looking at what kind of company it will be when

MicroCom Systems

OUTSTANDING SOFTWARE

For IBM PC's and Compatibles

$3.50 PER DISK SMALL QUANTITIES

$3.00 PER DISK FOR TEN OR MORE

$1 OFF 5 DISKS OR MORE WITH THIS COUPON

☐ **BUSINESS 1**—EZ-Forms business form generation
☐ **CAD 1**—Altamira, 4 color object oriented drawing prog.*
☐ **COMM 3**—Compression and archival utilities.
[5] **COMM 4a,b,c,d,e**—(5 disks) RBBS Bulletin Board System 14.1D.
[2] **DATABASE 1a,b**—(2 disks) The File Express menu driven general purpose database
☐ **DATABASE 3**—The pBASE relational database.
☐ **EDUCATION 1**—Interactive DOS tutorial for new PC users. Makes learning DOS painless
[2] **FINANCE 1a,b**—(2 disks) PC Accountant 2.0 personal bookkeepping/finance management.
☐ **GAMES 1**—3-D PacMan, Kong, SpaceWar, JanitJoe.*
☐ **GAMES 2**—Qubert, Pango, Centipede, Monopoly.*
☐ **GAMES 3**—Blackjack, Arm Chair QB, and Empire
☐ **GAMES 4**—Castle, StarTrek, and the original Adventure
☐ **GAMES 5**—The Hack adventure game from the universities. Like Rogue, only more complex.
☐ **GAMES 6**—Pinball, Othello, Sopwith (fly one).*
[2] **INFO 1a,b**—(2 disks) Cooking recipes database with keyword/ingredient retrieval prog. Add your own recipes.
☐ **LANGUAGE 5**—Turbo Pascal interactive debugger, pop-up help, formatters, et cetera.
☐ **LANGUAGE 7**—Complete Pascal interpreter, compiler, and debugger. Great for learning Pascal!
☐ **LANGUAGE 8**—Xlisp 1.7, the standard for AI langs.
☐ **MUSIC 1**—Many clever tunes, and an excellent color graphics music editor.
[2] **MUSIC 2a,b**—(2 disks) PianoMan 3.0 polyphonic music recording and playback program.
☐ **ORGANIZER 1**—DeskMate, a Sidekick clone, and the Judy calendar program.
☐ **ORGANIZER 3**—The PC-Outline Resident windowing outline editor/thought organizer.
☐ **PICTURES 2**—High res. digitized pictures. Graphics req'd
☐ **PINUP 2**—Provocative high res. pinups. Graphics req'd
☐ **PRINTER 1**—Font & sideways utils, spooler, banner mkr
☐ **UTILITIES 1**—A collection of invaluable DOS utilities
☐ **UTILITIES 2**—More invaluable DOS utilities. Too many to list here!
☐ **UTILITIES 3**—Complete set of debugging and diagnostic utilities

NEW RELEASES/UPDATES

[2] **CAD 2a,b**—(2 disks) Advanced 2D/3D drafting program. 640k.*
☐ **CAD 3**—The PC-Flow, flowchart creation program.*
[2] **COMM 1a,b**—(2 disks) Version 2.4 of the ever-popular Qmodem
[2] **COMM 2a,b**—(2 disks) Procomm 2.42, an excellent modem program with terminal emulation
☐ **EDUCATION 2**—Learn the Presidents, States (and capitals) and the periodic table.*
☐ **EDUCATION 5**—Learn Origami, the Japanese art of paper folding, with step by step animated instructions.*
☐ **EDUCATION 7**—Learn Basic with this interactive Basic tutorial.
[2] **FINANCES 3a,b**—(2 disks) Express Calc 3.12, a powerful spreadsheet program.
☐ **GAMES 8**—The Striker helicopter attack game, and Risk, the game of world domination.*
☐ **GAMES 9**—EGARisk, world domination in very high res EGA required.
☐ **GAMES 10**—Solitaire, Golfing, and Sailing in the Bermuda triangle.*
☐ **GAMES 12**—Chess, Backgammon, and Wheel of Fortune. Graphics not required.
☐ **GRAPHICS 1**—Record and play back screen images! Excellent for demo creation, training, etc.*
☐ **HUMOR 1**—Practical, impractical & other jokes.
[2] **INFO 2a,b**—(2 disks) Zip-Phone, national areacode/prefix to zip-code cross ref. A must for businesses.
☐ **LANGUAGE 1**—PDProlog 1.91a, an advanced language for artificial intelligence applications.
[2] **LANGUAGE 3a,b**—(2 disks) The A86 2.18 macro assembler and debugger. A complete assembly development system.
☐ **LANGUAGE 10**—Augusta, a subset of the Department of Defenses' new programming language ADA.
[2] **LANGUAGE 11a,b**—(2 disks) Forth-83 2.1 4th generation programming language.
☐ **SHELL 4**—Automenu customizable menu facility, and the HDM II 4.04 hard disk menuing system.
☐ **UTILITIES 5**—Utilities for formatting, parking, and optimizing hard disk drives.
☐ **UTILITIES 6**—Advanced utilitiess including Dpath, Esc, Hotdos, Pushdir and Popdir. Resident program utilities and more.
☐ **UTILITIES 7**—More Advanced utilities including MasterKey (undeletes files from hard disks), Killdir.
[2] **WORD 1a,b**—(2 disks) PC Write 2.71, a powerful word processing system, with built in spell checker.

*Disks so marked require color graphics

MT-5/88

Cost of Disks _____
CA Res Sales Tax _____
Ship/Handling $1.00
Total Enclosed _____

MicroCom Systems
3673 Enochs Street, Santa Clara, CA 95051
(408) 737-9000
M-F 7 am-9 pm, Sat-Sun 8 am-5 pm

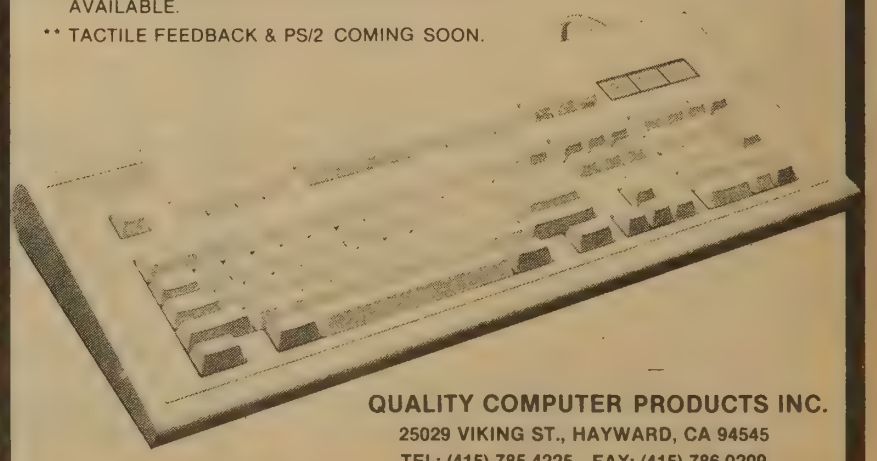
CKB

KEYBOARDS

Outstanding Quality at Unbeatable Prices

FACTORY DIRECT

** HIGH RELIABILITY CAPACITIVE KEYSWITCHES WITH JAPANESE KEYPADS.
** DOUBLE INJECTION MOLDED STANDARD KEYS.
** NEW PERMA-COAT PROTECTIVE LAYER GIVES A LIFETIME IN EXCESS OF 50 MILLION KEYSTROKES.
** FOURTEEN DIFFERENT LANGUAGE VERSIONS AVAILABLE.
** TACTILE FEEDBACK & PS/2 COMING SOON.



QUALITY COMPUTER PRODUCTS INC.
25029 VIKING ST., HAYWARD, CA 94545
TEL: (415) 785-4225 FAX: (415) 786-0209

Faster than a speeding bullet...

SYSTEM--80286-Based PCs (clock speed in MHz/No. of wait states	CPU
AST Premium/286 (10/0)	**2.25**
IBM PC AT (6/)	**1.00**
IBM PC XT 286 (6/0)	**1.32**
IBM PC AT (8/)	**1.37**
IBM PS/2™ Model 50 (10/1)	**1.71**
IBM PS/2 Model 60 (10/1)	**1.72**

CPU measures main processor performance relative to the 6-MHz (Model 099) IBM PC AT.

Source: InfoWorld Hardware Benchmark System, as published in InfoWorld May 11, 1987.

The **AST Premium/286** personal computing system provides increased IBM AT-compatible computing power... *performing 50%* faster than traditional 8 MHz ATs.

...more powerful than a locomotive

Features include:

* 10 MHz 80286, keyboard selectable 10, 8, or 6 MHz.
* 1.2 Megabyte 1/2 ht floppy.
* 512k ram expandable to 2 MB in a single slot.
* 10 MHz 80287 socket support.
* 7 total expansion slots.
* MS Dos 3.21 and G.W. Basic.

AST Premium/286 Model 80 Business Computing System

Includes: AST Premium/286 Model 80 with 1 MB (exp. to 2 MB), Seagate ST 251-1 40 MB 28ms hard disk, Hercules Graphics Plus, Amdek 410 series monochrome monitor.

Showroom opening May 1

Diamond price: $2749

List: $3999

Configuration and testing included.

Now see the AST Premium/286 Business Computing System at the new Diamond Software Computer Showroom. In addition to this system, there are desktop publishing and presentation workstations using other AST computers.

Diamond Software
HARDWARE AND SOFTWARE FOR CORPORATE AMERICA

Come in today and let us help you with a system that meets your needs.

433 HEGENBERGER ROAD, STE. D
(Look for the building with the blue roof at the corner of Hegenberger and Edgewater.)
(415) 430-3095

CORPORATE ACCOUNTS CALL:
(415) 633-2588

7916 Capwell Drive • Oakland, CA • 94621

Prices subject to change without notice. All trademarks apply to trademarked products and their respective companies.

On The Firing Line

Quattro: Borland's Affordable Powerhouse

By Stephan Wickham
and the Diamond Software Technical Team

It was lately announced that Lotus will be six months late in delivering its Release 3 of *1-2-3*. Meanwhile, there are new-generation products for those who don't want to wait. Microsoft, for instance, has its fine *Excel* spreadsheet for users with the horsepower to run it. Unfortunately there are still many personal computer users out there with no access to a 80286 or 80386 computer.

These users needing a Lotus-type spreadsheet would be well advised to consider Borland's flashy spreadsheet *Quattro*. This spreadsheet certainly has the most fluid interface of all the Lotus *1-2-3*-type spreadsheets, because you can tailor the interface your own way. You can change the screen colors and design your own command menus.

Quattro doesn't introduce many new features to the industry; instead, it takes an industry standard and polishes it in areas that most needed it.

Improvements On The Standard

Quattro can be made to look like Lotus *1-2-3* by picking an optional command interface. This allows users who are familiar with Lotus *1-2-3* to begin using *Quattro* painlessly.

In addition to the *1-2-3* interface, *Quattro* has a standard interface and a special one built for spreadsheet novices. You can switch between interfaces easily — two people with vastly different abilities can use the *Quattro* program. You can build custom menus if you are the type of person that likes to explore all of a program's features. *Quattro* allows you to specify colors within its interface. Colors can also be applied to numeric ranges. This feature allows you to highlight data that falls outside your set range. *Quattro*'s user definable interface is more than a slick gimmick, as you can run Borland add-ins and run custom commands.

Quattro reads *1-2-3* files without the slightest trouble, including the macros. *Quattro* can, without translation, read *dBASE, Paradox, Symphony* and ASCII files. *Quattro* can also attach add-ins that are built specifically for *Quattro;* Lotus *1-2-3* add-ins will not work. Included with the *Quattro* package are a program to customize the user interface and a program to log keystrokes to disk.

Minimal recalculation is a core feature of *Quattro*. When you make a change in a *Quattro* spreadsheet, only affected cells that reference other cells are recalculated. The recalculation of the *Quattro* spreadsheet is speeded up tremendously by having this important feature.

Quattro also supports expanded memory (EMS) and can make use of up to four megabytes compared to Lotus *1-2-3*'s two megabyte limit. Spreadsheets much larger than this are not currently very practical on most personal computers as the system slows down like molasses in winter as soon as it enters the expanded memory boundary.

The minimal recalculation feature works well with large spreadsheets. If you should have a spreadsheet with most of its formulas tied into a cell you are going to change, then *Quattro* is faster than Lotus *1-2-3* in some situations. When formulas are heavily interconnected, it is always best to use manual recalculation to specify the range of cells you want to recalculate.

Quattro has wonderful graphics. On a VGA monitor *Quattro* graphics are a real traffic stopper. There are ten graph types — bar graphs, line graphs, pie charts, XY graphs, area charts, 3-dimensional bars, stacked bars, rotated bar, markers and combined bars and markers. You can customize these graphs by changing the X/Y axis scales, colors, series and type faces. *Quattro* allows you to use a nice selection of type faces from its font menu. It is also possible to change the marker symbol patterns, fill patterns and explode pie charts. It is not possible to add text freely anywhere on your graphs. *Quattro* does have support for PostScript printers and typesetting machines.

Quattro handles macros much better than Lotus *1-2-3*. Building macros is especially easy with *Quattro*'s auto-record feature. You can give a *Quattro* macro routine a name and then plug the name into a custom built menu. This is a big step beyond the 26 possible Alt-key "hot key" combinations that Lotus *1-2-3* provides. For advanced users, *Quattro* has a very complete macro language.

Quattro really shines with its macro debugging feature. You open a debugging window and watch the window while the program steps through the macro. You can set breakpoints to stop processing at any given point. You can set conditional breakpoints within the debugging process. *Quattro* could be the answer for those of you afraid to program macros into your spreadsheets. *Quattro* is also for users who want to program complicated macros without having to work as hard as in Lotus *1-2-3*.

Quattro is extremely easy to install on your computer. It will automatically detect the type of screen you are using. If you have some strange monitor configuration it is possible to set the screen type manually. Novice users should not have any trouble loading and configuring *Quattro*. Use the *Quattro* novice interface if you are a beginner to spreadsheets. When you become proficient with the subset of commands offered in the novice interface switch to the default full *Quattro* command set.

Lotus *1-2-3* expatriates might well want to use the Lotus *1-2-3* style interface. The major difference in the *Quattro* implementation of the *1-2-3* interface is that the menu pops up on the right side of the screen. The structure of the Lotus *1-2-3* style interface should be practically identical to the original. The default *Quattro* interface is more comprehensive and better organized than the *Quattro 1-2-3* interface. It is possible to take the *Quattro 1-2-3* menu and alter it to include the missing *Quattro* commands.

Help is available by pressing the F1 key. New users can take advantage of being able to view the last help screen viewed by pressing Alt-F1. This helps in learning a new feature, since you can toggle back to the same help screen. The documentation provided with *Quattro* is quite good and there is a very thorough on-line tutorial. Novice users should be up and running in no time.

Quattro has some other nice features. Shortcuts lets you assign a key to a macro command string. This can be a neat feature if you use some macros over and over on a particular problem. *Quattro* can also be set to keep the last command you used ready for immediate access. This is better than having to navigate around several menu layers as in other spreadsheet programs.

Quattro has a built-in version of *SQZ Plus* to automatically compress files if you specify. Files can also be retrieved or saved in some of the other spreadsheet formats by specifying the file extension.

There is a facility called Transcript that records each keystroke to disk as it's made. This will allow you to recover your spreadsheet at the point you last left it if the power should fail or the system crash. It is also possible to use the transcript feature to edit work made after the last save. You can run back and change any errors. You will have your spreadsheet the way you want it without any major steps needed to make your corrections. *Quattro is smart.* It keeps track of when you last made changes; if you try to exit, it will ask you to save the spreadsheet.

Borland offers free technical support for *Quattro.* Support is also available through CompuServe in a special Borland section. Diamond Technical also supports *Quattro.*

You will be better off with *Quattro* if you are planning on purchasing Lotus *1-2-3.* If you are currently using Lotus *1-2-3* you might consider *Quattro* if you need better graphics, more speed and easier-to-use macros. *Quattro* offers no copy protection, a super-easy installation, a customizable interface and file compatibility with other major spreadsheets.

The only drawback we could find is if you are planning to use third-party Lotus *1-2-3* add-ins. They won't work with *Quattro.* Even so, *Quattro* should be the spreadsheet of choice for the majority of users. At last count over 100,000 copies of *Quattro* have been sold. *Quattro* is by any definition a major player in the spreadsheet market, and a bargain at $195. Call for the special Diamond price.

For information on Borland *Quattro* and other fine products contact Diamond Software at (415) 633-2588. For technical information contact Diamond Technical at (415) 633-2589. We are at your service.

At
Diamond Software
we recommend:

WordPerfect ~~4.2~~ 5.0 --
Corporate America's NEW word processing choice.

Diamond price: **$199** List: $495
(Limited offer good thru May 31)

Demanding corporate customers like Ford, Chrysler and TRW made **WordPerfect 4.2** the best selling word processor for the IBM-PC and compatibles.

Now 5.0 adds new features. Integrated text and graphics. Automatic redline and strikeout. Mixed fonts. Improved parallel columns...*all with extensive technical support*

In business for almost six years, at **Diamond Software** we know that great pricing is important. And...in addition to the lowest possible price on software, we can support all your hardware needs as well. Monitors. Hard Drives. Printers. Scanners. And computers from AST and WYSE.

Finally, you can be sure that any product purchased from **Diamond Software** receives our full support. Technical Manager, Stephan Wickham, and our technical team discuss innovations in the fast moving computer industry every month in **MicroTimes.** Their insights can assist your decision making--while saving you time.

WordPerfect CORPORATION

GRAND OPENING

***Now you can see WordPerfect 5.0 at the* NEW DIAMOND SOFTWARE COMPUTER SHOWROOM IN OAKLAND**

433 HEGENBERGER ROAD, Ste. D

(415) 430-3095

SPECIAL OFFER
(good thru May 31)

We would like to send you a collection of reprints from **MicroTimes** written by Stephan Wickham, our Technical Manager ...*Just send us $1.00 (refundable with purchase) and the coupon at right.*

Diamond Software has the technical knowledge to back the products we sell.

☐ Send me _____ copies of WordPerfect 5.0 at $199 a copy plus 7% sales tax and $5.00 shipping and handling. Please send a company purchase order along with your check.

☐ Send me the collection of Stephan Wickham's, ON THE FIRING LINE, reprints from **MicroTimes.** *I am enclosing $1.00 which will be applied towards a future purchase.*

Name _____
Title _____
Company _____
Address _____
City _____ State ____ Zip _____

Diamond Software 7916 Capwell Drive, Oakland, CA 94621

Diamond Software

HARDWARE AND SOFTWARE
FOR CORPORATE AMERICA

CORPORATE ACCOUNTS CALL:
(415) 633-2588

7916 Capwell Drive • Oakland, CA • 94621

Belmont Computer Products

Turbo XT System $359

- 4.77/8 MHz Switchable
- 256K RAM on 640K Board
- 360K Floppy Drive w/Controller
- AT Style Keyboard
- 150W Power Supply
- Mono Graphic Card w/Printer Port
- 1 Yr Limited Warranty

10 MHz XT System $379

AT 286 System $749

- 6/10 MHz 0 Wait
- 512K RAM on 1 MB Motherboard
- Real Time Clock, Calendar
- 1.2 MB Floppy Drive w/Controller
- 220W Power Supply
- AT Style Keyboard
- Mono Graphic w/Printer Port
- Western Digital FD/HD Controller
- 1 Yr Limited Warranty

12 MHz 0 Wait System $849

386 20 MHz 0 Wait EGA System $1999

- 1 MB RAM on 2 MB Motherboard
- Landmark=27 MHz
- EGA 640x480 on Board
- Western Digital FD/HD Controller
- Teac 1.2 MB Floppy Drive
- 80287 & 80387 Socket
- 2 parallel & 2 Serial on Board
- Enhanced Keyboard

16 MHz 0 Wait System $1799

Motherboard

Turbo XT	$75
10 MHz XT Motherboard	85
AT 6/10 MHz, 0 Wait	255
Baby AT 6/10 MHz, 0 Wait	255
AT 6/12 MHz, 0 Wait	299

Interface Card

Mono Graphic Card	$40
Color Graphic Card	40
Multi I/O (XT)	55
Floppy Disk Card XT/AT	25/45
Everex Micro Enhancer EGA Card 640x480, 132 column	135
Paradise 640x480 Autoswitch	160
Genoa Super-Hi 800x600	185
AT Multi I/O	45
AT WA2 FD/HD Controller	109
DTC 5287 RLL FD/HD Controller	159

Modem

Easy Data 1200 In/Ex	$70/75
Easy Data 2400 In/Ex	160/165
Everex 1200 Baud	79
Everex 2400 Baud	165

Floppy Drive

Fujitsu 360K/1.2M	$69/83
Teac 360K/1.2M	73/86
Toshiba 3.5" 720K	95
Toshiba 3.5" 1.44MB	125

Keyboard

BTC 5060 XT/AT	$39
BTC 5339 Enhanced	49
Keytronic Enhanced	49

Misc.

150/200W P.S.	$45/62
LogiMouse C7/Bus	65
XT/AT Case	28/55

Hard Disk

Seagate-225 Kit	$255
Drive Only	210
ST-238 Kit (30M)	285
ST-251 (40M 39MS)	380
ST251-1 (40M 28MS)	450
ST-277R (60M 39MS)	469
ST-4096 (80M 28MS)	759

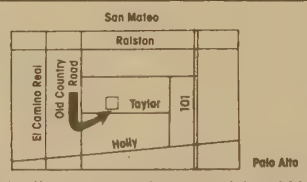
Monitor

Samsung Mono	$70
Samsung Color	225
Samsung EGA	330
Casper Mono	80
Casper Color	235
Casper EGA	345
NEC Multisync II	575
Nanao 8060S	535

Printer

Epson LX800	199
Epson LQ500	349
Star NX1000	179
Citizen 120D	145
Citizen 180D	159
Citizen MSP-40	299
Citizen MSP-45	399
Ricoh 3200Q (Daisywheel, 132 column)	199

Belmont Computer Products
1775 Old Country Rd. #21
Belmont, CA 94002
(415) 598-9058



Hours: M-F 9-7 ● UPS Shipping Daily ● Dealer Inquiries Welcome ● Co. Purchase Welcome

Computer Roll Top Desk

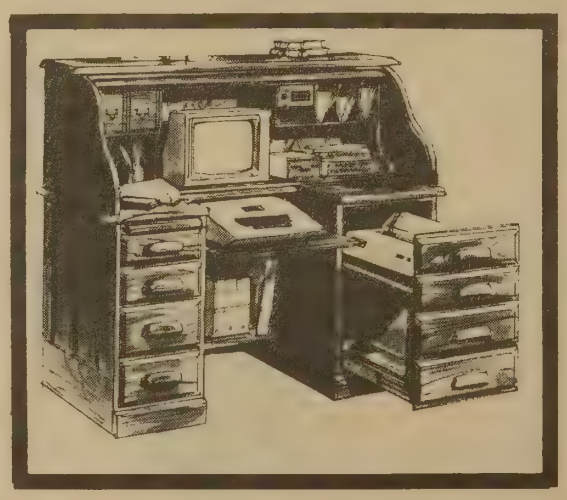
- Built-in Surge Protector
- File Drawer
- Modular Phone Jack
- Diskette Drawer
- 56"W x 30"D x 49"H

In Stock—Call Now!

OPEN M-S 9-5:30 WED. TILL 8

ALPHA
FINE COMPUTER FURNITURE

930-0277
2241 N. MAIN-WALNUT CREEK



it is selling twice that amount. Chief Financial Officer Deborah Coleman said that Apple sees the day when its sales will make it one of the largest computer (not just microcomputer) companies in the U.S. She said that Apple is looking at expanding its manufacturing capabilities here and abroad and looking at manufacturing some of the components that it now buys from other manufacturers.

IBM Renegotiates Rights To Token Ring Technology

Due to many people using IBM's Token Ring networking boards in non-IBM computers, IBM has renegotiated its license to the technology with the inventor, Olof Soderblom. Soderblom's company, Willemijn Holdings BV of Rotterdam, The Netherlands, holds the patents on the technology which IBM uses in its Token Ring cards. Originally, Willemijn had licensed IBM to use token ring adapters only in its own computers; Willemijn then licensed the technology to many other companies such as AT&T and 3Com. However, many people used IBM's cards in PC compatibles, so IBM had to get a new license.

QMS Buys Imagen To Widen Market

Two of the major players in the laser printer market, QMS and Imagen, are combining into one company in order to market laser printers through the entire range of prices. QMS, mostly known for its inexpensive and mid-range printers, is buying Imagen, well known in the high end of the market, in exchange for QMS stock. The combination will give QMS a much better marketing position in companies which already own Imagen printers and now need to buy lower-cost printers for other purposes. QMS, 205/633-4300.

Borland Announces SideKick Plus With New Memory Management

Responding to the pleas of PC users not to take any more of their RAM memory, Borland released its new resident utility package, *SideKick Plus*. Although it has many more features than the best-selling *SideKick*, it takes up a smaller amount of RAM due to its ability to swap parts of the program in and out when needed, and it can take advantage of extra RAM in systems that follow the LIM expanded memory specification. The new product costs $199.95, significantly higher than the original *SideKick*. To make *SideKick Plus* more attractive, Borland will release later this year a programming package that allows developers to add program modules to *SideKick Plus*.

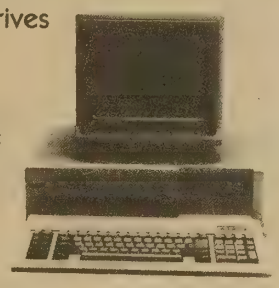
Apollo's New Parallel RISC Computer Called "Personal Supercomputer"

Intent on keeping up with the rapid pace of the minisupercomputer market, Apollo announced its new computer architecture, called PRISM, and said that its first entrant in the market runs 100 times faster than a VAX 11/780. The 64-bit computer is mostly aimed at the high-end scientific and design market, and the first computers in the series will cost around $100,000. Many software companies said that they intend to support the new computers by porting their software as soon as possible. Apollo's marketing appears directly aimed at Sun, responding to the favorable reviews Sun has been getting for its new SPARC architecture computers. Apollo claims that its system runs about twice as fast as a Sun 4/260. The new computer should be shipping in the fall, according to the comany.

Enhanced Micro Systems: Your Multi-Source Solution

XT TURBO MONO SYSTEM

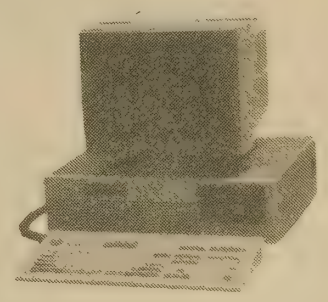
Features:
- XT Turbo dual-speed 4.77/10 MHz motherboard
- AT jr. case with 150W power supply
- 256K RAM Installed
- Two ½ ht. 360K floppy disk drives
- Floppy disk controller
- Monochrome graphic card w/printer port
- High Resolution monochrome monitor
- AT style keyboard
- FCC Class B Approved (4.77/8 MHz less $20)



$525

386 SYSTEM 16 MHz or 20 MHz

Features:
- 100% IBM AT compatible
- 1 MB 32-bit RAM
- 1.2 MB floppy drive
- Floppy/Hard-disk controller
- Enhanced AT keyboard
- 200W power supply
- 7 expansion slots
- AT style case
- 20 MHz optional



CALL FOR BEST PRICE

AT TURBO MONO SYSTEM

Features:
- AT Turbo dual-speed 6/10 MHz motherboard
- AT case with 200W power supply
- Zero wait state
- 512K RAM installed
- One ½ ht. 1.2 MB floppy disk drive
- Monochrome graphic card w/printer port
- High resolution monochrome monitor
- AT-compatible keyboard
- FCC Class B approved

$780

AT 12 MHz SYSTEM. $949

NANAO 8060S Monitor Multi-scan

PLUS Super EGA Board

- IBM personal system II compatible
- IBM PGA, EGA, CGA compatible
- 15.5 to 35 KHz horizontal 50 to 80 Hz vertical scan
- Super Hi-Res (820x620) 14" inch multi-scan color monitor
- 0.28 mm dot pitch CRT (8060s)
- Flexibility meets your various application requirements from word processing to CAD/CAM
- Free monitor stand

Monthly Special **$675**

Add-On Cards & Peripherals Call For LOW LOW Price!!

MONTHLY SPECIAL

386 Motherboard
- 20 MHz or 16 MHz
- 1 MB expandable to 2 MB on Board
- 387 Socket On Board

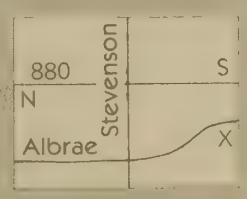
CALL

EMS 12 MHz 0 Wait Motherboard
- Expandable to 4 MEG
- XT Size Footprint

CALL

EMS
Enhanced Micro Systems Inc.
(415) 659-8784
40547 Albrae St. (Stevenson & 880)
Fremont, CA 94538

DEALER INQUIRIES
CORPORATE P.O.'s
WELCOME



PRICES SUBJECT TO CHANGE W/O NOTICE

AT/XT is a trademark of IBM, Inc.

RECREATIONAL/ EDUCATIONAL

Halls Of Montezuma: A Battle History Of The United States Marine Corps

By: *Roger Keating and Ian Trout*
Published by: *Strategic Studies Group (1987)*
For: *Apple II(64K)*
List Price: *$40.00*
Reviewed by: *Mike Markowitz*

Halls Of Montezuma from Strategic Studies Group is the best computer implementation of board wargaming ever published. The team of Roger Keating and Ian Trout has been perfecting the basic design for several years, through two previous games, *Battlefront* and *Battles In Normandy*. The new program is compatible with scenarios created for the two previous games.

The package includes seven battles from the history of the U.S. Marine Corps:

Mexico City — 1847. General Winfield Scott's army of 10,738 Americans (including one batallion of Marines) faces General Santa Anna defending his capital with 32,000 Mexicans. Your objective is the downtown complex of palaces and government buildings immortalized in the Marine Hymn as the "Halls of Montezuma." By adjusting a few game parameters, Montezuma has a better chance to get his revenge.

Belleau Wood — 1918. The inexperienced Fourth Marine Brigade is the last thing standing between a horde of rampaging Huns and Paris, the City of Light. As a Marine captain said at the time, "Retreat, hell. We just got here."

Iwo Jima — 1945. You won't believe how tiny this island is. This is your big chance to raise the flag on Mt. Suribachi, the volcanic cinder cone at the southwest corner. If you saw John Wayne in *Sands Of Iwo Jima*, you know how this one goes. If you haven't, you shouldn't be playing wargames.

Okinawa — 1945. One hundred thousand very determined Japanese dare you to break through their fortified lines. The weather report is cloudy, with a 100% chance of heavy typhoons. This was the Marine's biggest battle, ever.

Pusan Perimeter — 1950. The First Marine Brigade counterattacks the over-extended North Koreans. Definitely not another episode of *M.A.S.H.*

Inchon — 1950. Crazy Doug MacArthur's brilliant flanking maneuver; this was probably the last great amphibious assault in history. Unless the First Marine division recaptures Seoul, things look grim for the 1988 Olympics.

Hue — 1968. The Tet offensive was a military disaster for the North Vietnamese, but a brilliant propaganda success. Charlie has occupied Vietnam's ancient Imperial capital, and you have a month to take it back from him, house by house. No heavy artillery, 'cause you don't want to damage the ironically-named Palace of Peace.

The game system puts the player in the position of a two-star or three-star general commanding up to three divisions. Each division is composed of regiments, and each regiment contains several battalions, which are the basic fighting units. Battalions may be infantry, artillery, armor or one of many other specialized types. Using an intricate system of nested menus, you assign missions and resources to your units. Typical missions are attack, defend, and rest. Units ordered to attack will move toward their objective; units ordered to defend an objective will deploy to protect it.

Halls Of Montezuma is recommended for experienced players of computer wargames. The user interface is a ponderous system that accurately simulates some of the complexities of battlefield command and control. A 104-page manual includes historical notes and complete instructions for designing your own battles and battlefields. Strategic Studies Group publishes a quarterly journal, *RUN 5*, that provides meticulously researched data for creating new game scenarios. A new wrinkle in the system is WARPAINT, an icon-editor that lets you create your own terrain and unit symbols. A colorful laminated map sheet gives you an overview of all seven battlefields; this is helpful, since the screen window only shows you a small area at one time. The game is copy-protected, but it allows you to make one backup. A handy screen dump utility for some printers and in-

Publish or Perish!

Free Demonstrations of the Latest Desktop Publishing Products and Free Lectures on the Hottest Topics in DESKTOP PUBLISHING!

This one day event allows computer users the convenience of viewing a number of desktop publishing programs and utilities in a short period of time, addressing their questions directly to the programs' publishers. We also invite you to listen in on one or all of the interesting lectures on Desktop Publishing that will be given throughout the day!

800-Software invites you to view the following Desktop Publishing Products:

Adobe
Adobe Illustrator '88

Aldus
Pagemaker • Freehand • SnapShot

Ashton-Tate
Byline

Digital
Gem Desktop Publisher • Gem Draw Plus • Gem Presentation Team

IMSI
Pageperfect • DP Graphics

Insight
Laser Control • Laser Plotter • Jet Plotter • Desk Plotter • Matrix Plotter

Laser Edge
VP/TABS • VP/BASE • VP/SADDLE • VP/FONTS

Lightgate
Felix

Lotus
Manuscript • Freelance Plus

Micropro
Wordstar 2000 Plus/ Word Publishing

Microsoft
Microsoft Chart • Powerpoint

Software Publishing
Harvard Graphics

Silicon Beach Software
Digital Darkroom

Wordperfect
Wordperfect 5.0

Xerox
Ventura Publisher

Z-Soft
Publisher's Paintbrush

Plus lectures on the following Desktop Publishing Topics:

Chris Taylor, Ashton-Tate
Byline Product Manager
Topic: *Database Publishing*
Time: *11:00 A.M.*

John Brandon, Adobe
Western Regional Sales Manager
Topic: *Place of Postscript in Desktop Publishing*
Time: *12:00 Noon*

Tim Buckley, Aldus Corporation
Director of Sales
Topic: *Standardizing and Controlling Corporate Use of Desktop Publishing*
Time: *1:00 P.M.*

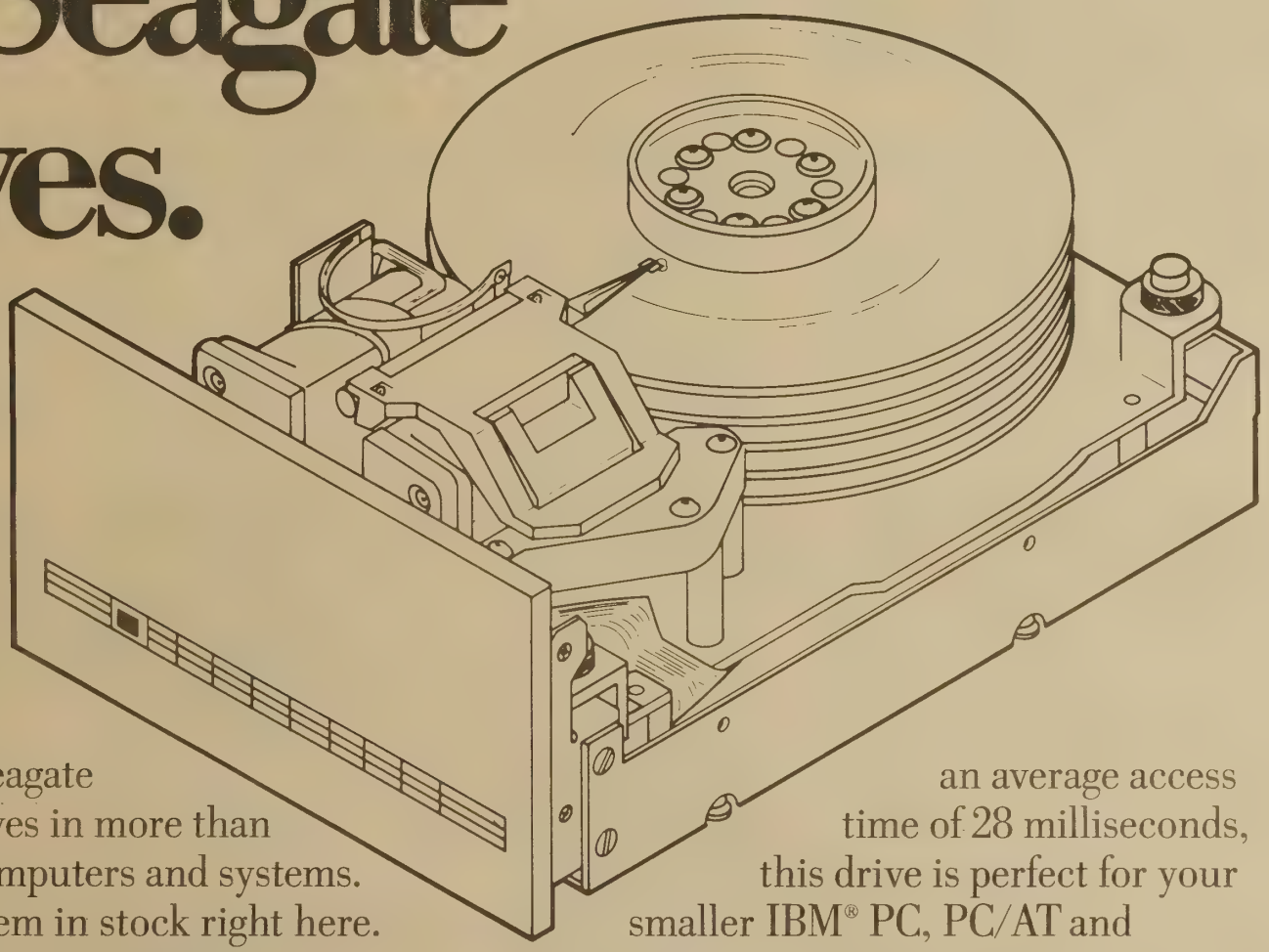
Steve Lawrence, Xerox Corporation
Western Regional Sales Manager
Topic: *Presentation Tools in Today's Corporation*
Time: *2:00 P.M.*

Monday, May 2,
10:30 A.M. - 4:30 P.M.
San Francisco
Hyatt Regency, Embarcadero

For Reservations or Our Free Catalogue
Call: 415-644-3611 ext. 880

Brought to you by:
800-SOFTWARE
918 Parker Street
Berkeley, CA 94710
415-644-3611

Mini Micro Supply, the first place to look for Seagate drives.



You will find Seagate 5¼" hard disc drives in more than 6 million small computers and systems. You'll also find them in stock right here.

We sell Seagate drives because they're built with the consistent quality that ensures exceptional performance in every drive you install.

Featured here is Seagate's full-height ST4096 hard disc drive. With a formatted capacity of 80 megabytes per drive, and an average access time of 28 milliseconds, this drive is perfect for your smaller IBM® PC, PC/AT and compatible systems.

So when you're looking for drives for new computers, disc storage upgrades or add-ons, contact Mini Micro Supply Co. Inc., 2050 Ringwood Ave., San Jose, CA 95131 (408) 434-6859. We're the first place to look for the first name in disc drives.

Seagate

IBM is a registered trademark of International Business Machines.

Mini Micro Supply
The Reseller's Resource.

terfaces helps to cut down on the need to take notes.

This game represents the ultimate evolution of the 64K Apple II wargame. The designers need to set their sights a little higher, and explore the advantages in graphics and playability that could be realized on a 128K system. (Strategic Studies Group, 1747 Orleans Court, Walnut Creek, CA 94598.)

A.I.: An Experience With Artificial Intelligence

By: *Cary Hammer*
Published by: *Scholastic Software*
For: *Apple II series (128K)*
List Price: *$14.95 each*
Reviewed by: *Mike Markowitz*

Artificial intelligence ("A.I.") is perhaps the most controversial concept in all of computer science. Some skeptics define A.I. as a fuzzy term that we apply to any advanced application that a computer can't do very well yet. The term has been applied to such diverse areas as natural language "understanding," robotics, expert systems and pattern recognition.

Generally speaking, an "intelligent" system should have some means of acquiring information from the outside world, some kind of goal-directed behavior, and some way of "learning" from experience in order to improve its performance. (I am grateful to the brilliant Russian cyberneticist Henry Firdman for this definition . . .) In academic circles, research on A.I. until recently was pretty much confined to highly specialized machines running LISP, a bizarre language that consists largely of parentheses. A new program from Scholastic Software demonstrates that useful and instructive A.I. capabilities can be implemented on our familiar little Apple II.

A.I.—An Experience In Artificial Intelligence is intended for computer classes in Grade 5 and up. It demonstrates applications of pattern recognition and decision theory in the form of a "machine" that learns to play simple games without being told the rules.

The games are generalized versions of Tic-tac-toe or Go-moku. Human and computer alternately place markers on a game board. You can define a square grid of any size from 3 × 3 up to 6 × 6. You can define up to four different winning patterns. A "winning pattern" can be several markers in a row, column or diagonal, or it can be more complex, like a cross, diamond or triangle. It can even include enemy markers as part of the pattern.

Each computer pattern-recognizer is called a "Brain." As you play successive games, you are actually programming a Brain. Several Brains are provided with the program disk, and you can save your own Brains on specially formatted 5.25" disks ("Brain Banks").

A.I. uses icons and graphics very creatively to clarify what could otherwise be difficult concepts. An "eye" symbol next to a number on the control panel represents "Foresight" — the number of turns ahead for which the Brain computes its options. As a Brain makes deeper plans you can see the quality of its play increase, but the program slows down dramatically. *A.I.* runs significantly faster on the IIGS, but I did not have a chance to test it with an accelerator card.

Only a few keys are needed to control the game — arrows, spacebar, return, escape and Control-S (to toggle the sound effects). A superb 112-page manual is organized into a series of ten Explorations (tutorials) and an extensive reference guide. There is a detailed but non-technical explanation of how the program works. The quality of the writing is a model for educational software — it never

Your #1 Source For Discounts!

Mon.-Fri. 8:30-6:00 Sat. 9:30-5:00

Lotus 123 $297 | dBase III + $369 | WORDPERFECT $189 | Desqview Qemm 386 $38

SOFTWARE

• adaptive (usa), inc.
TRACKER .53
• adobe systems
ADOBE ILLUSTRATOR-MAC .292
ADOBE TYPE LIBRARY .CALL
• aldus corp.
ALDUS FREEHAND .CALL
PAGEMAKER / IBM .459
• american small business
PRODESIGN II .139
DESIGN CADD 3/D .139
• ansa software
PARADOX V.2.0 .366
PARADOX 2.0 6 USERS .579
PARADOX 386 .595
• ashton-tate
dBASE III + .369
dBASE III + LAN PACK .579
dBASE MAC .292
FRAMEWORK II .349
BYLINE .179
RAPIDFILE .237
DRAW APPLAUSE .269
MASTER PRESENTATION GRAPHICS .329
MULTIMATE ADVANTAGE II .259
• autodesk
AUTOSKETCH REG .49
AUTOSKETCH ENH. W/8087 SUPPORT .59
• avery international
AVERY LIST & MAIL .33
• banner blue
ORG PLUS .62
• barrons educational
BARRONS SAT .36
• bartel systems
LE MENU .42
• bitstream
INSTALLATION KITS:
#1. MS WINDOWS KIT .49
#2. VENTURA PUBLISHER KIT .49
ALL FONTWARE TYPEFACES .147
• block development
PROFESSIONAL TYPEFACES .277
FORM TOOLS .57
• boeing computer services
BOEING GRAPH .189
BOEING CALC .224
• borland int'l.software
QUATTRO .107
SPRINT .112
REFLEX .87
REFLEX WORKSHOP .45
REFLEX (MAC) .59
SIDEKICK NCP .40
SIDEKICK PLUS .112
SUPERKEY .59
TURBO PASCAL W/BCD-80/87 .62
TURBO TUTOR .45
TURBO GRAPHICS TOOLBOX .59
TURBO EDITOR TOOLBOX .59
TURBO DATABASE TOOLBOX .59
TURBO GAMEWORKS .45
TURBO LIGHTNING .59
TURBO NUMERICAL TOOLBOX .59
TURBO PROLOG .59
TURBO PROLOG TOOLBOX .59
TURBO BASIC .59
TURBO BASIC TELCOM .65
TURBO BASIC EDITOR TOOLBOX .65
TURBO BASIC DATABASE TOOLBOX .59
EUREKA EQUATION SOLVER .95
TURBO "C" COMPILER .62
WORD WIZARD .44
• business tools
TAS + ACCOUNTING .59
TAS + DATABASE .59
DEVELOPER'S DATABASE .139
• bpi
BPI GENERAL ACCOUNTING .167
• breakthrough s/w
TIMELINE .262
TIMELINE GRAPHICS .107
• broderbund software
MEMORY MATE .42
TYPE ! .31
PRINTSHOP .35
PRINTSHOP COMPANION .32
PRINTSHOP GRAPHICS (1/2/3) EACH .27
TOYSHOP .39
TOYSHOP REFILL .19
• bourbaki
1 DIR + .55
THE SFE UTILITIES .CALL
• bridgeway publishing
FAST TRAX .33
MENU BLOCKS .59
• bytel
GENIFER .189
• core international
CORE FAST .89
• central point software
COPY TO PC (IBM & MAC) .21
PC TOOLS .21
PC TOOLS DELUXE .44
COPY TO PC OPTION BOARD DELUXE .107
• chipsoft
TURBO TAX FED. PERSONAL VER .45
TURBO TAX STATE CA.PER.VER. .35
• compuserve
COMPUSERVE STARTER KIT .22
• computer associates
SUPERCALC 4 .209
SUPER PROJECT PLUS .219
SPREADSHEET AUDITOR .79
SUPER PROJECT EXPERT .373
SILVERADO .91
G/L & A/P & A/R & PAYROLL .CALL
• concentric systems
R&R/RELATIONAL REPORT WRITER .89
• csi/consumer software
DUET .57
• cosmos software
ADVANCE REVELATION .485
• dac software
DAC EASY ACCOUNTING BONUS PACK .95
DAC EASY ACCOUNTING VER. 2 .59
DAC EASY PAYROLL VER. 2 .42
DAC EASY BASE .32
DAC EASY RE-PORT .29
DAC EASY MATE .29
• delta tech.
DIRECT ACCESS .51
• design software
DS BACKUP PLUS .49
DS RECOVER .27
DS OPTIMIZER .36
DS TUTOR .21
• digital research
CONCURRENT PC DOS XM .171
CONCURRENT DOS 386 (3 USERS) .292
GEM COLLECTION .79
GEM DRAW PLUS V.2 W/BUS. LIB. .169
GEM GRAPH .167
GEM WORD CHART .87
GEM DESKTOP PUBLISHER .209
GEM DESKTOP .37
GEM PRESENTATION TEAM .239
• dow jones co.
DOW JONES NEWS RETRIEVAL .21
• executive systems
X TREE PRO .65
HOT .86
• fox company
FOX BASE PLUS V.2 SINGLE USER .239
FOX BASE PLUS V.2 MULTIUSER .342
SINGLE USER LIMITED RUNTIME .179
SINGLE USER UNLIMITED RUNTIME .262
MULTIUSER LIMITED RUNTIME .291
MULTIUSER UNLIMITED RUNTIME .371
• fifth generation
FASTBACK PLUS .95
• funk software
SIDEWAYS .42
IN-WORD (FOR LOTUS) .59
NOTE WORTHY .44
WORKSHEET UTILITIES .55
• fox & geller
QUICK CODE + .147
• gazelle system
Q DOS II VER.3 .39
BACK IT .71
• generic software
GENERIC CADD 3/D SOLIDMODELING .99
GENERIC CADD 3/D RENDERING .79
GENERIC CADD V.3.0 .57
AUTO CONVERT .29
DRAFTING ENHANCEMENTS #2 .29
ELECTRONIC SYMBOLS#1 .29
IGES MINI OR MAINFRAME LINK .137
FLOWCHARTS MODULE .29
HYDROLICS MODULE .2
BASIC HOME DESIGN .2
COMMERCIAL & RESENDICIAL .2
ALL OTHER SYMBOLS .CALL
• good software
CELEBRITY .3
• golden bow systems
V OPT .4
V CACHE .3
V FEATURE DELUXE .10
• howard software services
TAX PREPARER FEDERAL/1987 .18
TAX PREPARER STATE; CA./1987 .7
• imsi int'l.
DR. HALO III .7
DR. HALO III W/MOUSE SYS. MOUSE .9
DR. HALO III W/GENIUS MOUSE .5
TURBO HALO .7
DPG/DESKTOP PUBLISHERS GRAPHICS 8
PAGE PERFECT .CALL
• intersecting concepts
BACKUP MASTER .5
DISPLAY MASTER .5
• intuit
QUICKEN .3
• javelin corporation
JAVELIN PLUS .16
• lifetree software
VOLKSWRITER 3 .14
• living videotext
THINK TANK .9
MORE (MAC) .14
READY .5
• lightgate
FELIX .109
• lotus development
LOTUS 123 .29
SYMPHONY .41
HAL .9
MANUSCRIPT .35
FREELANCE PLUS .33
LOTUS METRO .5
• logitech
LOGIMOUSE W/ + PACK S/W .7
LOGIMOUSE W/ + PACK S/W & CARD "BUS" .7
LOGIMOUSE PS/2 MOUSE .6
PC PAINTBRUSH OPTION PACK .4
GENERIC CADD OPTION PACK .3
LOGITECH HI-RES MOUSE .9
• macropac
101 MACROS FOR M/S EXCEL/MS DOS .4
101 MACROS FOR LOTUS 123 .4
101 MACROS FOR SUPERCALC .4
101 MACROS FOR SYMPHONY .4
101 MACROS FOR dBASE III + .4
101 MACROS FOR WORDPERFECT .4
101 TIPS, TRICKS, TRAPS 4 LOTUS .4
• mansfield software group
K EDIT .8
• mark williams co.
FAST FORWARD .3
• master soft
WORD FOR WORD .8
• mathsoft
MATHCADD VER.2 .20
• meca
MANAGING YOUR MONEY .11
• meridian
CARBON COPY PLUS .10
• micropro int'l.
WORDSTAR PROPACK VER.4 .22
WORDSTAR 2000 + PERSONAL EDITION .17
WORDSTAR 2000 + LEGAL VERSION .27
• micrografx
PC DRAW .18
WINDOWS DRAW W/CLIPART .16
IN-A-VISION .25
WINDOWS GRAPH .24
WINDOWS CONVERT .6
WINDOWS CAD .5
WINDOWS CAD CLIPART .5
THE DESIGNER .44
• micrologic corp.
TORNADO NOTES .5
TORNADO NOTES W/LIBRARY .7
• microrim
R BASE FOUR DOS .42
DB GRAPHICS .17
CLOUT 2 .17

DISCOUNT MICRO WORLD™
68 PAUL DRIVE SUITE C SAN RAFAEL CALIFORNIA 94903 ▪ 415 492 8890

CALL NOW● TOLL FRE
1-800-225-3034 CA.
Terms: Prices include 3% cas discount. Add 3% for charg card orders. Shipping on mo software is $5.00. CA. order ad 6% sales tax. Price and availabi ity are subject to change witho notice.

Your #1 Source For Discounts!

Call Now - Toll Free 1-800-225-3034 CA.

M/S Excel $295 | **Clipper $353** | **Super Calc 4 $209** | **NEC Multi-sync $579** | **Vega Deluxe $179** | **Ventura PUBLISHER $469**

PROGRAM INTERFACE 350
EXTENDED REPORT WRITER.....177
• microlytics
GOFER 37
• microsoft
WRITE/MAC 100
PAGEVIEW 35
BOOKSHELF 215
WORD /MSDOS 210
WORD /MAC 221
EXCEL /MSDOS.....295
EXCEL /MAC 221
MACRO ASSEMBLER 88
WINDOWS V.2 62
WINDOWS 386.....117
WINDOWS DEVELOPMENT TOOLKIT...299
"C" COMPILER V.5 257
QUICK "C".....62
MULTIPLAN 121
QUICKBASIC COMPILER 65
BUS MOUSE W/EASY CADD 117
BUS MOUSE W/PAINTBRUSH 105
BUS MOUSE W/WINDOWS 135
SERIAL MOUSE W/EASY CADD 117
SERIAL MOUSE W/PAINTBRUSH 105
SERIAL MOUSE W/WINDOWS.....135
WORKS /MSDOS 119
WORKS /MAC 177
FLIGHT SIMULATOR /MSDOS & MAC 33
ACCESS (COMMUNICATIONS) 139
CHART 242
PROJECT.....277
LEARNING DOS.....33
FORTRAN COMPILER 269
COBOL COMPILER.....412
• microstuf c/o d.c.a.
CROSSTALK 16 95
CROSSTALK MARK 4 119
REMOTE.....95
• migent
ABILITY VER. 2 109
MIGENT POCKET MODEM.....151
• monogram/tronix
DOLLARS & SENSE W/FORECAST.....99
• nantucket
CLIPPER.....353
MC MAX /MAC 149
• new england software
GRAPH IN THE BOX 55
• northedge software
TIMESLIPS ADV. V.3 109
• nolo press
WILL WRITER 37
• owl international
GUIDE.....107
• paperback software
VP PLANNER.....44
VP PLANNER PLUS.....89
VP INFO 63
VP EXPERT 63
VP GRAPH 63
• paul mace software
MACE + UTILITIES.....49
H TEST H FORMAT 49
GRASP 49
• palantir software
WINDOWS FILER.....99
WINDOWS SPELL.....45
WINDOWS IN-TALK 99
WINDOWS CALC .....CALL
• peachtree software
COMPLETE BUSINESS ACCOUNTING..147
• paten & paten
FLOW CHARTING II + ...137
• p.c.s.g.
LIGHTNING 62
• pinpoint
MICRO COOKBOOK 29
• personics
@ BASE 99
SMART NOTES 47
SEE MORE (FOR L. 123).....47
• peter norton
NORTON UTILITIES VER. 4.0.....49
ADVANCED NORTON UTILITIES 77
NORTON COMMANDER.....39
INSIDE THE IBM PC (BOOK ⅓DISK) 24
NORTON GUIDES / PASCAL.....44
NORTON GUIDES / ASSEMBLY 52
NORTON GUIDES / "C" 52
NORTON GUIDES / BASIC 52
TWINPACK / ASSEMBLY & PASCAL.....65
TWINPACK / ASSEMBLY & "C" 72
• prosoft
FONTASY 39
ADD ON FONTS 1/2/3 EACH.....30
• prime solutions
DISK TECHNICIAN REG 65
DISK TECHNICIAN W/RLL SUPPORT 72
• productivity software
PRD + ...59
• quarterdeck
DESQVIEW VER. 2.0.....71
DESQVIEW COMPANION #1 62
QEMM/386 EXP. MEMORY MANAGER ...38
• qualitas
386 TO THE MAX 59
• revolution software
CRUISE CONTROL 27
• reference software
GRAMMITIC II 49
• rightsoft
RIGHTWRITER.....62
• solution systems
BRIEF EDITOR.....171
• simon & schuster
TYPING TUTOR 4 30
FULLY POWERED PC (BOOK/DISK) 22
WEBSTERS SPELLING CHECKER 39
WEBSTERS THESAURUS 39
SPEED READING TUTOR.....27
• stella
STELLA BUSINESS GRAPHICS.....55
• software group
ENABLE 366
• softclone
MIRROR MIRROR II.....44
• surpass
SURPASS.....349
• spinnaker
EIGHT IN ONE ACCOUNTING 33
RUNNING START.....27
• sterling castle
BASIC DEVELOPMENT TOOLS 82
BEST CHOICE/DECISION ANALYZER....35
"C" FUNCTION LIBRARY W/EGA & TSR .95
MANAGER 45
• softlogic
DISK OPTIMIZER VER. 3.....31
DOUBLE DOS VER. 3 31
SOFTWARE CAROUSEL VER. 3 31
CUBIT VER. 3.....31
MAGIC MIRROR.....49
@ LIBERTY 59
• softstyle
PRINTWORKS (LASERS) 67
PRINTWORKS (DOTMATRIX) 42
• storage dimensions
SPEEDSTOR 55
• software directions
PRINT Q 65
• software publishing
PFS:PROFESSIONAL FILE.....132
PFS:PROFESSIONAL WRITE.....108
PFS:PROFESSIONAL PLAN.....65
PFS:FIRST CHOICE 109
PFS:FIRST PUBLISHER 59
PFS:FIRST PUB. ALL FONT KITS.....27
HARVARD TOTAL PROJECT MANAGER .323
HARVARD GRAPHICS.....267
• springboard
THE NEWSROOM PRO.....79
CERTIFICATE MAKER.....34
• symantic
Q&A.....195
Q&A WRITE 109
IN BOX/PC E-MAIL.....58
• swfte int'l.
GLYPHICS 75
• sublogic
KINGS QUEST I/II/III 32
JET 32
SCENERY DISKS (ALL).....21
• traveling software
LAP LINK 75
LAP LINK + ...85
• turner hall
4 WORD (FOR LOTUS) 64
4 WORD VIEWS .....CALL
SQZ PLUS!.....57
NOTE-IT!.....53
SPELLIN.....50
SPREADSHEET ANALYST 57
• three/d/graphics
PERSPECTIVE.....131
• unison world
PRINTMASTER PLUS 35
NEWSMASTER 59
• vericomp
SOFT BYTES 29
• vm personal sw
RELAY SILVER.....79
• white crane
BROOKLYN BRIDGE.....79
• wordtech systems
DB XL 87
QUICKSILVER DIAMOND 279
• word perfect corp.
WORD PERFECT VER. 4.2. 189
WORD PERFECT LIBRARY REL. 2 57
WORD PERFECT EXECUTIVE 99
WORD PERFECT/MAC .....CALL
DATA PERFECT 262
PLAN PERFECT.....166
• water works
RAM LORD.....55
• xerox corp.
VENTURA PUBLISHER REL. 2.....469
• z soft
PC PAINTBRUSH PLUS 67
PUBLISHERS PAINTBRUSH.....169

HARDWARE

• amdek
AMDEK 410 BLACK & WHITE.....155
AMDEK 410 AMBER 155
AMDEK 410 GREEN 149
AMDEK 1280 BLACK & WHITE W/CARD .660
CD/ROM LASER DRIVE 605
• ast research
SIX PAC PLUS W/64K 145
SIX PAC PLUS W/384K 227
SIX PAC PREMIUM W/256K 209
RAMPAGE AT W/512K.....329
RAMPAGE XT W/256K.....272
ADVANTAGE AT W/128K 249
PREVIEW OF I/O CARD 139
• ati
ATI EGA WONDER CARD 189
ATI VGA VIP 272
• belkin
SWITCHBOX SERIAL/2 POSITION.....47
SWITCHBOX PAR./2 POSITION 47
• chips "memory"
256K 100NS 8
256K 120NS 8
256K 150NS 8
64K 150NS 3
• citizen printer co.
CITIZEN 180-D 180CPS.....173
MSP 40 240CPS 80COL 296
MSP 45 240CPS 132COL 384
MSP 50 300CPS 80COL 355
MSP 50 COLOR OPTION 66
MSP 55 300CPS 132COL 449
MSP 55 COLOR OPTION 71
TRIBUNE/EPSON LQ1000 EMUL. CARD. .78
TRIBUNE 224 24PIN/132COL.....579
CITIZEN PREMIERE 35 DAISYWHEEL ..539
• complete pc
COMPLETE ANSWERING MACHINE....239
COMPLETE FAX 337
COMPLETE HAND SCANNER 177
• curtis
UNIVERSAL COMPUTER STAND.....22
UNIVERSAL PRINTER STAND 20
COMPUTER TOOL KIT 21
• everex
300/1200BAUD INT. MODEM W/S/W 87
1200/2400BAUD INT. MODEM W/S/W ...171
2400/1200/300BAUD EXT. MODEM 199
I/O MINI XT W/PAR/SER/CLK 61
I/O MINI AT W/PAR/SER 61
RAM 3000 DELUXE-AT OK TO 3MEGS....99
PS/2 2400 INT. MODEM.....191
PS/2 2400 EXT. MODEM 227
EGA DELUXE W/PAR. PORT 129
EVERGRAPHICS MONOCARD W/PAR. PORT 77
• genoa
SUPER EGA HIGH RES.800x600 249
• hayes
ALL MODEMS.....CALL
• hercules
GRAPHICS CARD + W/RAMFONT 179
IN COLOR CARD W/ 16 COLORS.....289
• intel corporation
MATH COPROC.8087-PCXT-5MHZ.....112
MATH COPROC.8087-PCXT-8MHZ.....157
MATH COPROC.8087-PCXT-10MHZ.....199
MATH COPROC.80287-AT-6MHZ 174
MATH COPROC.80287-AT-8MHZ 242
MATH COPROC.80287-AT-10MHZ 284
MATH COPROC.80387-386-16MHZ 464
• kraft
PREMIUM II JOYSTICK 27
PREMIUM III JOYSTICK 32
• microspeed
FAST 88 W/ V20CHIP.....96
FAST TRAP (MOUSE/LIKE).....95
• megahertz
10 MHZ XT SPEEDUP CARD! IBM ONLY.119
• mountain
20 MEG. HARDDISK CARD INT 529
30 MEG. HARDDISK CARD INT 550
50 MEG. HARDDISK CARD INT 653
• nec
NEC MULTISYNC MONITOR.....579
NEC MULTISYNC PLUS 905
NEC MULTISYNC XL.....2120
NEC P660 PAR. PRINTER.....434
NEC P7 PAR. PRINTER.....595
• panasonic
KXP1080i/M2 171
KXP1091i/M2 207
KXP1524 24PIN WIDE CARR.....567
KXP1592.....409
• paradise
EGA AUTOSWITCH-480 151
VGA PLUS 262
VGA PROFESSIONAL.....387
• plus development corp.
20 MEG HARD CARD 557
40 MEG HARD CARD 779
• quadram
ULTRA VGA 297
• samsung
12" AMBER MONO. MONITOR.....85
• seagate
20 MEG-XT W/CONTL. CARD.....295
30 MEG XT W/CONTL. CARD.....333
20 MEG-AT H/H 272
30 MEG-AT F/H.....524
• smt
SMT NO SLOT CLOCK 39
• stb
STB EGA PLUS 249
STB CHAUFFEUR (HT) 191
VGA EXTRA 299
• toshiba
TOSHIBA P321SL P/S 479
TOSHIBA P341SL P/S 639
TOSHIBA P351SX P/S 995
360K XT/AT DISK DRIVE 85
1.2 MEG. AT DISK DRIVE 109
3.5 XT/AT DISK DRIVE.....109
1.44 3.5 DISK DRIVE 109
• taxan
TAXAN 770 MULTISCAN MONITOR 525
• tecmar
TECMAR EGA 480 349
TECMAR EGA 800 419
• video 7
VEGA DELUXE EGA 179
VEGA VGA 272
• zuckerboards
ALL CARDS.....CALL

MISCELLANEOUS

• amaray
DISKETTE HOLDER/50 DISKS 5¼.....12
DISKETTE HOLDER/100 DISKS 5¼.....17
DISKETTE HOLDER/30 DISKS 3.5.....10
• maxell corp.
5¼ DS 10 PACK DISKS 11
5¼ HD-AT 10 PACK DISKS 21
3.5 DS 10 PACK DISKS 19
• generic disks
LOW PRICES!.....CALL
• sony
3.5 DS 10 PACK DISKS 20
3.5 SS 10 PACK DISKS 15
3.5 HD/AT 10-PACK 45
• printer cables
IBM PARALLEL CABLE 6'.....10
IBM PARALLEL CABLE 12'.....17
• sgl waber electric
LG20 SURGE PROTECTOR 25
DOS OPERATING SYSTEMS.....CALL

DISCOUNT MICRO WORLD™

68 PAUL DRIVE SUITE C SAN RAFAEL CALIFORNIA 94903 ▪ 415 492 8890

Call For Programs Not Listed

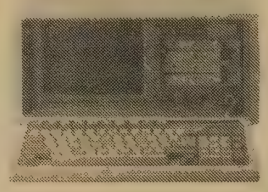
Terms: Prices include 3% cash discount. Add 3% for charge card orders. Shipping on most software is $5.00. CA. order add 6% sales tax. Price and availability are subject to change without notice.

Your Source for Reliable Computers & Peripherals Since 1983

SEE US AT WEST COAST COMPUTER FAIRE #1538

MONTHLY SPECIAL

- TOWER 386 BASIC SYSTEM $2049
- 44 MB HARD DISK 549
  (HALF HEIGHT, 28ms, AUTO PARK)
- 20 MB Hard Disk (65ms) 215
- EPSON FX-286e/LQ-850 ..... $LOW



INTRODUCING

THE WORLD'S 1st
EGA PORTABLE 386 ..... CALL
EGA PORTABLE 286 ..... CALL

BEAVER HI-RES 1024
- 14" Paper White Monitor (Flat Screen)
- 1024x768 Resolution
- Hi-Res Graphic Card
- For Desktop Pub. & CAD

ONLY $699

12MHz 0 WAIT 286
- 512K Memory
- 1.2MB Floppy
- HD/FD Controller
- Keyboard
- Norton SI = 15.3

ONLY $899

SYSTEMS

PORTABLE 386 ..... $2850
• 44MB hard disk (28ms) • 1MB RAM
• 16 MHz (0 Wait) • 1.2 MB floppy
• Serial/parallel port
(Call for 20 MHz System)

PORTABLE 286 SYSTEM $1350
• 1MB RAM • 10MHz (0 wait)
• 1.2MB floppy • MGP card

PORTABLE TURBO XT $899
• 10MHZ • 640K • Two floppy drives
• Serial/parallel/clock/game

SUPER BABY 286 ..... $920
• Small Foot Print Case • 200W PS
• 1 MB RAM • 10 MHz (0 Wait)
• 1.2 MB floppy

386 DESKTOP SYSTEM $1799
• 1 MB RAM • 1.2MB floppy • 200W P/S
• WA-2 controller • 101-key keyboard

10MHz TURBO XT $555
• Monitor • 150W P/S • 640K RAM
• One floppy drive • Keyboard
Call For EGA or Color Upgrade

MONITORS

EGA Monitor $350
14" Amber w/base (by SONY) 115
Samsung amber 12" w/base 74
RGB Monitor (14") 250
Other Models ..... CALL

POWER SUPPLY

200W $69
150W 50

KEYBOARDS

RT style enhanced 101-key
• with **CLICK** sound $65
• no click sound 55
AT style 84-key
• with **CLICK** sound 55
• no click sound 42
XT style 83-key 39

BOARDS & ADD-ON CARDS

386 System board $1399
Baby AT System Board (0K) 295
10MHz XT system board (0K) 80
(half size of regular XT board by Faraday)
AT I/O card (**2S/2P**) 49
XT multi I/O card 50
XT I/O Plus II card 45
AT/XT floppy controller 45
(for 1.2MB/720K/360K floppy)
XT floppy controller 25
286 accelerator card 199
Hard disk controller (XT) 60
WA-2 controller (AT) 139
EGA Wizard Deluxe 199
Mono/graphic/printer card 40
Color graphic w/printer card 40

ACCESSORIES

Baby AT case w/200W Power (Small Foot Print) $125
Full size AT case 65
Portable computer case 450
Diskette box 5.95
Vertical computer stand 15
Switch box (all models) 25
Panel Display 45
(Show Speed & I/O Access, Reset)

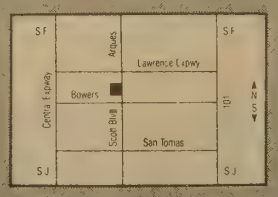
DRIVES

30MB w/controller $288
20MB w/controller 275
40MB drive (40ms) 399
1.44MB 3.25" floppy 109
1.2MB floppy 95
720K 3.25" floppy 95
360K floppy 69

Dealer Pricing & Quantity Pricing Available

STORAGE SYSTEM ENGINEERING SERVICE

3350 Scott Blvd., Building 19, Suite 1902 (near Bowers Ave.)
Santa Clara, CA 95054 **(408) 727-6040**



FAX 727-6042
HOURS: 10 AM-7 PM
Mon-Sat

master charge
VISA

talks down to the user, it discusses the implications of important ideas, avoids excessive jargon, and uses graphics effectively. A four-page quick start guide provides the bare necessities of information for users who can't wait to jump right into the program.

The designer and programmer, Cary Hammer, describes himself as a "freelance software designer ... who subsists mostly on bagels and Chinese food, and lives in the narrowest apartment in New York City." Other writers of educational software should study his work. *A.I. — An Exploration Of Artificial Intelligence* belongs in the software library of every school that has an Apple II with 128K. It is the kind of software that could spark the imagination of some twelve-year old today who will do great things in the twenty-first century. (Scholastic Software, 730 Broadway, New York, NY 10003 (212) 505-3000.)

Dream Zone

By: *Jason Rubin and Andy Gavin*
Published by: *Baudville (1987)*
For: *Apple IIGS (512K)*
List Price: *$49.95*
Reviewed by: *Mike Markowitz*

"There is a beast in your mind, a monster who possesses no power by day, but rules your thoughts at night. You must kill the beast, or your nights will continue sleepless. The beast will do everything in its power to win. It will throw your worst fears back at you and play with your mind. You have only one advantage over the beast: it likes games and will play with you . . ."

Dream Zone is a fantasy adventure game for the Apple IIGS. The authors are extraordinarily talented high school students, and the game is aimed at an adolescent market. If you liked *Hitchhiker's Guide To The Galaxy* and *Tass Times In Tonetown*, you are going to love *Dream Zone*. Unlike the classic fantasy adventure, which takes its pseudo-Tolkien epic-quest plot line very seriously, *Dream Zone* is packed with sight gags, outrageous puns, comic frustrations and mock violence. The sense of humor is occasionally raunchy, but never descends into truly bad taste (If you trust this reviewer as an arbiter of good taste, then you deserve whatever you get . . .)

The emerging standard for IIGS adventure games seems to require two 800K disks, mostly because super-hi-resolution graphics take up a lot of space. (Apple had better hurry up with a higher-density disk format.) The graphics, created mainly with Baudville's *8/16 Paint*, are suitably dazzling.

Dream Zone uses the old "Wizard of Oz" trick: everything is in black-and-white until you enter the dream world, which suddenly blossoms out in living color. A bouncy sound track changes to reflect the mood of each scene, but you can toggle it off when it gets too repetitious, or if your little brother in the next room is trying to sleep.

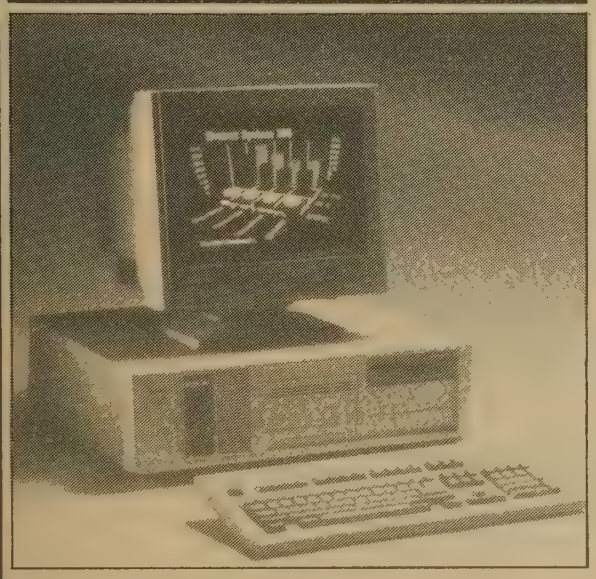
The user interface is an ambitious implementation of mouse-and-icons. Along with the graphic window, the standard menu bar, a text window, and a command line, you have a control pad for movement and various status indicators. Objects you are carrying ("inventory" in adventure-game jargon) are displayed as icons. As you collect treasures, they tend to crowd out the text window, but you can hide the whole lot from view with a simple mouse click. Games in progress can be saved directly on the program disk, which is copy-protected.

Once you enter the Dream world, the object of your quest is simply to survive, and get past the demon who blocks your return. You will have to outsmart the bureaucrat-pigs (with real snouts and beady little eyes) who staff the labyrinthine halls of

Time Is Money
Speed Is Of The Essence
Introducing The EVEREX 386/20 & 286/16

"A **NEW** Standard in PC Performance"

SYSTEM 386/20

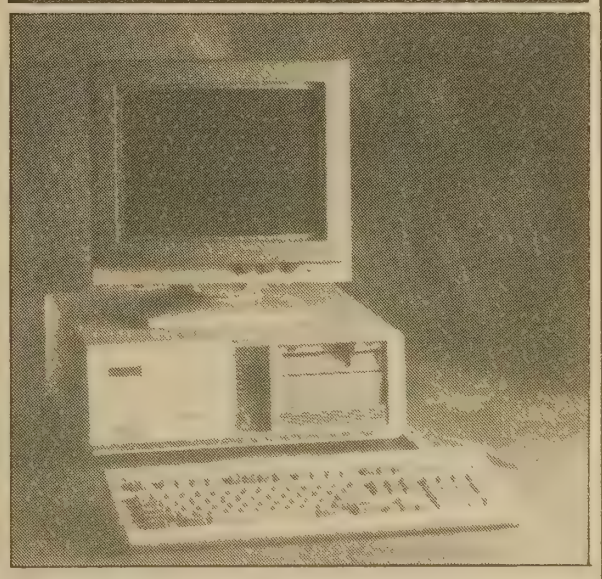


Designed To Operate As A Workstation, Extremely Fast File-Server or High Performance Multi-User System Ideal For CAD/CAM Application

Features
- Fully compatible with the IBM® PC/AT™
- Intel® 80386 microprocessor, running at speeds of 20, 10, 6.7 MHz with zero wait states. (16 and 8 MHz on the 386/16)
- Speed-selectable by keyboard, software or front-panel switch
- The bus operates at 10 or 6.7 MHz
- The machine uses write-back cache memory (64K, 128K or 256K of 25 ns static RAM)
- Socket for an 80387 math coprocessor option, running synchronously at 20, 10 or 6.7 MHz. (16 and 8 MHz on the 386/16)
- 1 Megabyte DRAM expandable to 8 Megabytes on the system board (120 ns DRAMs, 256 Kb or 1 Mb)
- Front panel LEDs for power-on, disk access and speed indication
- Alpha-numeric real-time diagnostic display (8-digit)
- 1.2 MB floppy diskette drive
- Six 16-bit and two 8-bit bus expansion slots
- One 32-bit memory expansion slot
- Special Everex very high performance (1:1 interleave) hard disk/ floppy combination controller
- Front access to up to 5 half-height mass storage devices
- Enhanced 101-key keyboard
- System clock/calendar/configuration data in CMOS RAM with battery backup
- Everex enhanced BIOS
- Easy-to-use SETUP utility in ROM, supports over 45 drive types
- BIOS supports 3.5" 720K diskette drives
- Front panel keylock to disable keyboard
- Front access reset switch
- Speaker enable/disable switch
- Complete, easy to follow user manual
- UL listed power supply; switchable 120/240 VAC

Available Only From Authorized EVEREX Computer Systems Division Dealers

SYSTEM 286/16



Features
- Fully compatible with the IBM® PC/AT™
- 80286 microprocessor, running at 16, 8 or 5 MHz with zero wait states (12 or 6 MHz with zero wait states on the 286/12)
- Speed selectable by keyboard, software or front-panel switch
- The bus operates at 8 MHz
- Socket for an 80287 math coprocessor option, running at 8 or 5 MHz
- 1 MB DRAM expandable to 4 MB on the system board
- Front panel LEDs for power-on, disk access and speed indication
- Alpha-numeric real-time status/diagnostic display (8-digit)
- 1.2 MB diskette drive
- Special Everex high performance 1:1 interleave hard disk/ floppy disk combination controller
- Six 16-bit and two 8-bit bus expansion slots
- Enhanced 101-key keyboard
- System clock/calendar/configuration data in CMOS RAM
- Everex enhanced BIOS
- Easy-to-use SETUP utility in ROM, no diskette required
- SETUP utility supports over 45 drive types
- BIOS supports 3.5" diskette drives
- Front panel keylock to disable keyboard
- Front access reset switch
- Speaker enable/disable switch
- Complete easy-to-follow user manual
- UL listed 192 watt power supply 120/240 VAC

Call Us For Full Line of EVEREX Peripheral Products and Computers.
We Also Carry Hard/Floppy Drives, Monitors, Printers and All Major Software.

3F

3F Associates
44100 Old Warm Springs
Fremont, CA 94538

(415) 659-0403

MICRO SERVICE CENTER INC.

Maintenance and Repair for Personal Computers

FAST On Site Response
By Qualified Technicians

QUICK In Shop Turn Around
Free Pick-Up and Delivery

- *IBM*
- *NEC*
- *Compaq*
- *HP Laser*
- *AT&T*
- *Apple Laser*
- *Apple*
- *Wyse*
- *Clone*
- *Data*
- *Okidata*
- *Products*
- *Epson*
- *Terminals*
- *Call for Others*
- *Xerox*

Upgrade Your PC To An XT 10MHz

$300.

Hardware purchases thru MSC come with one year on sight service including parts and labor.

Preventative Maintenance

• Computers • Monitors • Printers

** Floppies Checked for Alignment*
** Boards and Cables Checked*
** Hard Disk Checked for Clusters & Truncated Files * System Checked*
** Cleaned Inside and Out*

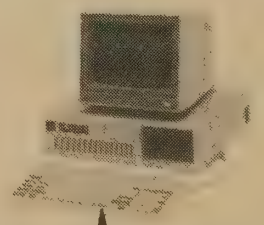
Help Is As Near As Your Phone

San Francisco	Oakland	Mid Peninsula
(415) 362-3261	(415) 770-0460	(415) 362-3261
San Jose	**Walnut Creek/Concord**	**East Bay**
(408) 292-6336	(415) 671-2279	(415) 770-0399

Maintenance Agreement Features

- 4 Hour On Site Emergency Response
- Two Preventative Maintenance
- Equipment Loaners *(when needed)*
- Telephone Consultation

Complete Computer Systems Including Hard Drive!



FLASH: Wholesale clone dealer opens its doors to the public, offering complete computer systems including AT's, 386 supersystems, training and more. Call today for details!

$549
Base System

Sturgill & Booth

3640 Edison Way Fremont, CA 94538

415-657-5945

the Department of Information, make friends with rats, discover the secrets of the Rigor Mortis Saloon, and raise the fare for an airship ride. That's all before you can get into the Castle . . .

Documentation is limited to an 8-page fold-out leaflet. You will need to read it carefully to get a feel for phrasing your commands.

Experienced adventure gamers who draw careful maps, take notes and are willing to try everything should have no major difficulties in *Dream Zone*. Beginners may need to send off for the hint sheet (type HELP on the command line for advice. Then try typing your favorite rude expletive. The program knows 'em all . . .)

Dream Zone is a good example of the great things that can be done with adventure games on the Apple IIGS. It is not cheap, but it provides a lot of entertainment value for the price. (Baudville, 5380 52nd Street SE, Grand Rapids, MI 49508 (616) 698-0888.)

Ticket To London Ticket To Paris

By: *Frieda Lekkerkerker and Byrd Kranish*
Published by: *Blue Lion Software*
For: *Apple II (128K)*
List Price: *$39.95*
Reviewed by: *Mike Markowitz*

Everyday life can also be an adventure game. You don't need monsters and magic spells. An unfamiliar city and a foreign culture can be adventure enough.

That's the premise of two new programs from Blue Lion Software. *Ticket To London* and *Ticket To Paris* are training exercises for prospective tourists. Both programs take the form of a hunt for clues that lead to the solution of a puzzle. In London, the puzzle is the identity of a famous British person. In Paris, you have to locate your missing cousin.

You have limited time and a limited budget. The play of the game moves back and forth between a simplified map of the city (where you choose your next destination) and a series of graphic screens where you engage in dialogue with the natives. Your side of the dialogue mostly involves selecting a canned answer from among several choices. As in many adventure games, you have to get enough food and rest or your health will suffer.

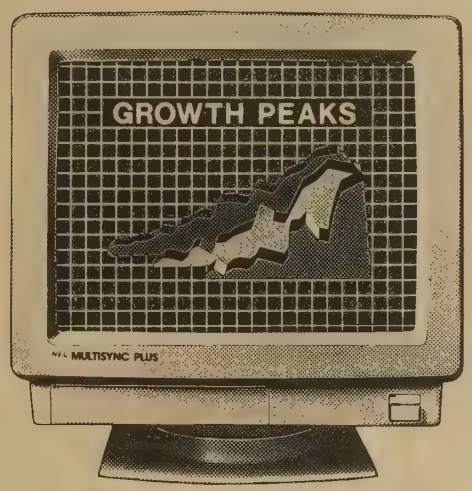
Ticket To Paris uses a simple-icon based user interface, which unfortunately lacks support for the mouse. You have the option of playing in English or in French. If you choose French, you can use an on-screen dictionary. The more you use the dictionary, the more tattered the pages become, and entries start to randomly disappear. This is the sort of simple, creative technique for building realism that more game designers should learn.

Each program includes a concise 14-page instruction leaflet. You will need to study it to get the most out of the game.

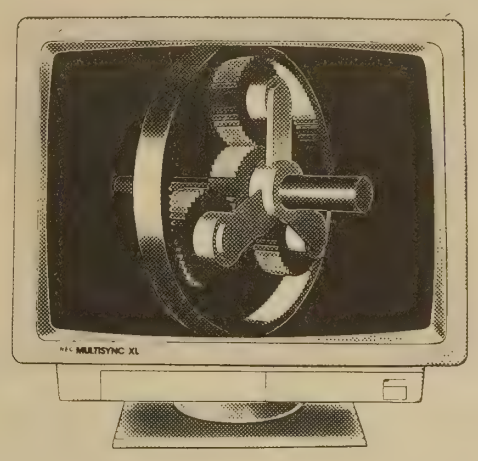
Given the limitations of disk space, computer memory and screen graphics, the city maps are not very detailed. It seems a shame to reduce a great world capital to a handful of hotels, restaurants, stores and museums, but perhaps that is an accurate simulation of the typical tourist experience. Still, it would have been helpful if the package included a good, detailed color fold-out map of each city.

The program keeps track of your name and what questions you have answered. The database is big enough that you will not exhaust the learning potential of the game in one or two playings. A game in progress can be saved on the program disk, which is copy-protected. (Blue Lion Software, P.O. Box 650, Belmont, MA 02178 (617) 489-2477.)

Now in Stock from Mini Micro Supply.

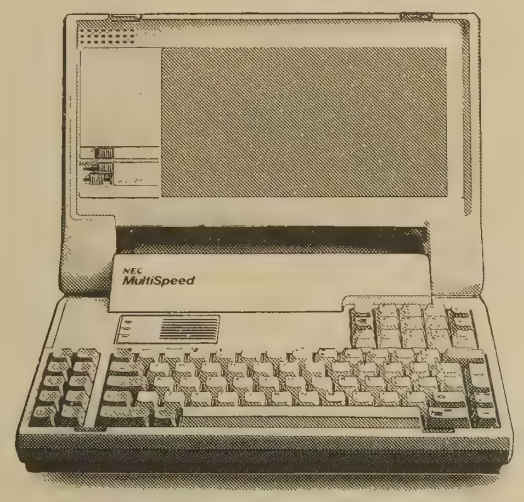


NEC® MULTISYNC® PLUS.



NEC® MULTISYNC® XL

NEC® MULTISPEED™ HD



NEC® MULTISPEED™ EL

We're Mini Micro Supply. The one company that fills large volume orders, fast. Because everything you need in PC's is in stock. From board level on up. Including NEC's new MVA 1024. With resolution up to 1024 x 768. Perfect for CAD and desk-top publishing applications.

That's why we're the ones for NEC's MultiSync monitors. Or NEC's MultiSpeed laptop computers.

We have the quantities you need. Competitive prices. And complete technical support.

So look no further. Call today. (408) 434-6859. Or write Mini Micro Supply, 2050 Ringwood Ave., San Jose, CA 95131. For technical details call NEC Home Electronics (USA) Inc. at 1-800-NEC-SOFT. VARs and dealers only.

Mini Micro Supply. The one name worth remembering.

Mini Micro Supply
The Reseller's Resource.

NEC is a registered trademark of NEC Corporation

Buy from the LOW PRICE LEADER & Don't compromise SERVICE!

LEADING EDGE
Authorized Dealer
Model D
2 Dr/20 Meg $729/999
30 Meg $1059
Model D2 30 Meg., 1.2 floppy, 640K $1599

NEC
HD w/20 Meg (New) . $2195
Multispeed $1299
New Blacklite (EL).... $1459

FAX $499
— COMPLETE —
Plain paper, auto redial, memory storage, full feature.

HP Laser Jet II including toner $1599
Scan Jet w/ interface $1379
Deskjet $699
Paint Jet $999

AT CLONE "10 MHZ"
40 Meg HD, 1 Meg RAM, 1.2 Floppy, Monitor, Zero Wait State
$1699

XT CLONE $899
Lowest Ever! 4.77 and 8 MHz, parallel, serial, mono monitor1 drive, 20 MG 640K

AST RESEARCH INC.
Premium 286 Complete System
w/40 Meg HD, High Res. EGA Monitor, 512K RAM, 1.2 Floppy, DOS, Clock, Serial, Parallel, EGA Card **$2450**
All Configurations In Stock
• MDL 140 original..... **$2750**
386 "NEW"
Call for Best Price

COMPAQ®
Deskpro 286 "12 MHZ" In Stock . . $1659
w-20 Meg/ w-40 Meg. 2249/2549
Deskpro 386 "20 MHZ" 60 Meg . . . 5399
Deskpro 386 "20 MHZ" 130 Meg. . . 6499
Portable II MDL 4 Original 2659
Portable III MDL 20/40 . . . . . 3399/3999
Portable 386 "20 MHZ" 40 Meg . . . 5499
Portable 386 "20 MHZ" 100 Meg. . . . . In Stock

IBM Personal System II
MDL 25/30 .....$1099/1299
MDL 80 w/ 40/70 Meg $3999/4599
Model 50. . . . . $2699
Model 60, 40 Meg/70 Meg . . $3095/3399
MDL II Proprinter.....$399
X-24/XL-24.....$559/729

ZENITH
LAPTOP 181 ..... $1599
LAPTOP 183-10 ..... $1999
NEW 183-20..In stock. $2299

Seagate HARD DISKS
20/30/251 .. $265/295/369

CITIZEN
MSP 40/45/50/55 . . . .In Stock
MSP-35 Premiere $449

VEGA
VGA NEW. . .In Stock. . . $339
Deluxe EGA $199

Lotus®
Lotus 1-2-3 .....$299
Symphony 3 1/2" $349

Diconix Portable Printer . .$339

NEC Multisync II $569

Sony EGA 1302 . . . . . $529

ALR 386
w/60 Meg HD, 1.2 floppy, 1 Meg RAM,
16 MHz/20 MHz . **$2999/3299**

TOSHIBA
LAPTOPS
T-1200 . . . . . $2199
T-1100 . . . . . $1350
T-1000 . . . . . $729
T-321SL/341SL . . $459/649
T-3200 . . . . . $3699
T-5100 . . . . . $4799
T-3100/20 . . . $2999
T-3100/10 . . . $2399

EPSON®
GQ 3500/EX 800 ... $1359/429
EX 1000/LX 800 .... $469/195
FX-86E/FX-286E ... $299/435
LQ-500/LQ-850 ..... $359/510
LQ-1050/LQ-2500.. $679/849

NETWORKING - call W.L.A.
NetWare
NOVELL
INSTALLATION AND SET-UP

DESKTOP PUBLISHING — CALL JOHN (213) 542-8325

L.A. COMPUTER CENTER
Support Service Availability
Major credits accepted. Corporate accounts welcome
full line dealer
Consultants & Dealers Welcome
FAX (213) 312-9041

(213) 542-3501
S. BAY
17013 Hawthorne Blvd.
(off 405 S 91 Fwy)

We ship UPS
(213) 478-0768
W.L.A.
12002 Pico Blvd.
(off 10 & 405 Fwy)

CHECK US OUT!

SYSTEMS
AST Premuim 286/386 ..... CALL
Acer 1100 (386) w/40MB 3029
Micronics 386 Systems ..... CALL

MONITORS
Sony Multiscan $625
Nec Mulitisync II 560
Mitsubishi Diamond Scan 525
Amdek 1280 685
AST Premium Mono 159

SOFTWARE
Triumph 3D ..... CALL
See what real 3D can do
Ventura Publisher 489
Borland & Microsoft ..... CALL

PRINTERS
NEC P2200 325
NEC P6 435
Okidata 294 ..... LOWEST
Epson & Toshiba ..... LOWEST

HARDWARE
Video 7 Vega VGA 265
Genoa Super EGA 249
AST Boards ..... CALL

FLOPPY DISKS
Teac 55BV 360K/55GFV1 .. 72/87
Toshiba 3.5 720K/1.44MB 99/150

HARD DISKS
Seagate ST225. ..... $209
Seagate ST 251/251-1 ... 365/465
Micrpolis 1335 70MB 28ms ... 675

COMPONENTS
256K, 15/12/10 ..... CALL
64K 15/12/10 ..... CALL
256K x 9 SIMM N.S ..... CALL

MOTHERBOARDS
• DTK 10MHZ 80286
• DTK 12MHZ 80286
• Micronix 80386-16
• Micronix 80386-20
• DTK 8088-10

DEALER INQUIRIES WELCOME
Price subject to change
Authorized AST Dealer.

VALLEYTEK INTERNATIONAL
1618 Pomeroy Ave. *(off El Camino Real)*
Santa Clara , CA 95051
(408) 984-0107
Fax: (408) 980-1795

Kenfil Announces Top Software Sellers

BUSINESS & PRODUCTIVITY —MS-DOS

Last Month	April	
1	1	Turbo Tax
2	2	WordPerfect
4	3	Turbo Pascal 4.0
5	4	Managing Your Money
7	5	FormTool 2.0
3	6	Quattro
6	7	Turbo C
8	8	Paradox
9	9	Dac-Easy Accounting
11	10	MathCAD
12	11	WordPerfect Library
–	12	Carbon Copy
13	13	Clipper
15	14	Gem 3 Draw Plus
–	15	Flow Charting II

UTILITIES—MS-DOS

Last Month	April	
1	1	Norton Utilities Advanced
12	2	XTree Professional
2	3	Direct Access
11	4	PC Tools
6	5	Sideways
3	6	Fastback Plus
4	7	Mace Utilities
8	8	DESQview
9	9	Disk Optimizer
7	10	Norton Utilities 4.0
10	11	Print Q
14	12	SeeMORE
–	13	Q Dos II
5	14	Disk Technician Plus
–	15	XTree

MACINTOSH

Last Month	April	
1	1	MacinTax
6	2	Mac Money 3.0
3	3	Superpaint
4	4	Suitcase
5	5	Canvas
–	6	The Curator
7	7	Mac Coach
8	8	MacTREE
–	9	Managing Your Money
10	10	Wordfinder

Source: Kenfil Distribution, Van Nuys, CA. "Kenfil April Bestsellers."

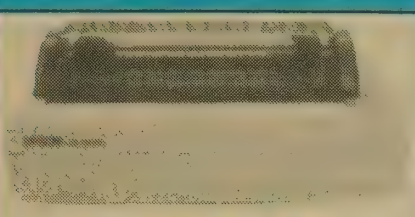
WE DELIVER INSTALL SERVICE & TRAIN YOU

REPAIR & SERVICE
CALL FOR SERVICE CONTRACTS
Your Guaranteed #1 Source for Authorized Repair
FREE DELIVERY OF COMPUTERS IN SAN FRANCISCO

PLEASANT HILL
1527 Contra Costa Boulevard
Pleasant Hill, CA 94523
Off Hwy 680
Contra Costa Blvd Exit
(415) 682-8696
(415) 634-TOWN

SAN FRANCISCO
760 Market Street, Ste 219
(Phelan Bldg)
S.F., CA 94102
(415) 956-8696
(415) 956-TOWN
Fax (415) 989-TOWN
Mon-Fri 8-6, Sat 10-5

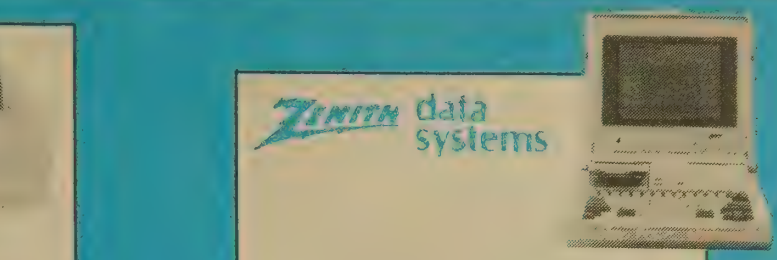
MOUNTAIN VIEW
2455M Old Middlefield Way
Mt. View, CA 94043
(415) 962-8696
(415) 962-TOWN
Mon-Fri 9-6, Sat 10-5



EPSON PRINTERS

Epson technology has long set the industry standard for computer printers. Epson's reliability and high performance are available in printers that offer remarkable value.

LQ 800
FX86E/FX 286E
LQ 500/LQ 800
LQ 1000/LQ 2500
LQ 850/LQ 1050
EX 800/EX 1000



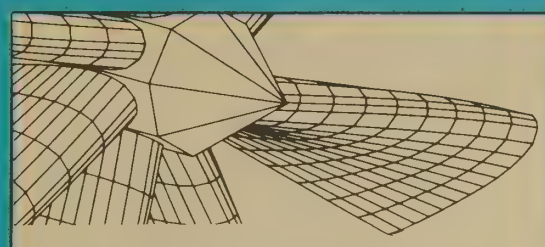
Zenith data systems

Zenith's new **Z-183** 20 MB laptop has a built-in hard drive powered rechargeable battery. So you can run it anywhere, anytime. The **Z-183** boasts 20 megabytes of hard disk storage; 640K of memory, and a 3½" floppy drive which can run most PC/XT compatible software. What's more, it features our top-rated blue, super-twist back-lit LCD screen.

Also available
Zenith 181
Zenith 183/20
Zenith Flat Screen Monitor
Zenith 1200/2400 Modem
Zenith 41/2 External Floppy

Authorized **Zenith** Dealer

All Accessories in Stock!
Best Prices In Town!

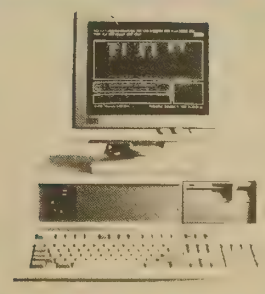


INTRODUCING:
AUTOCAD
RELEASE 9

Featuring a new user interface with pull-down menus, icon menus, file portability across operating systems, twenty new text fonts, and more. We listen to our customers.

Authorized **AutoCAD** Dealer
AutoCAD is registered in U.S. Patent and Trademark Office by AutoDesk Inc.

AUTOCAD



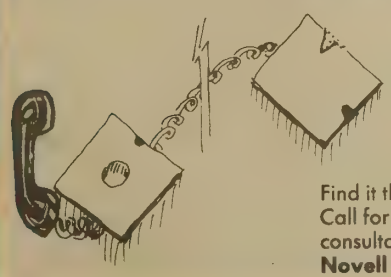
AST PREMIUM 286/386 EXTRAVAGANZA

Models Available:
AST-40, 70 & 130
AST 286 10 MHZ 40 MB Full Mono System

Lowest Prices
Largest Stock
Best Selection

IN TOWN!

Networking & Modems
Novell & Hayes
9600 Baud V Series Modems



Have you been searching for the perfect link?

Find it through us and **Novell.** Call for estimate & consultation. Authorized **Novell** Dealer.

We Also Carry:

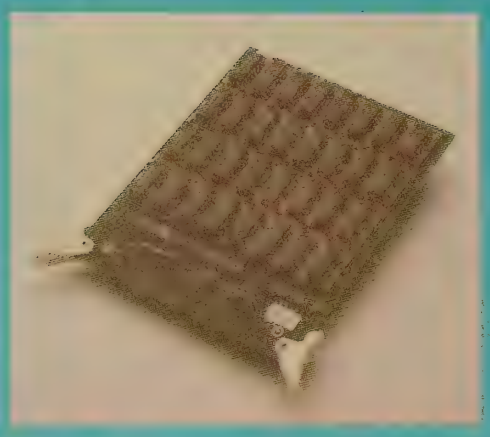
Toshiba Laptops	NEC
Samsung	Microsoft
Multitech Acer	Intel
Wyse	Iomega

We are proud to be an Authorized Dealer

Novell	**Epson**
AutoCAD	**AST**
Zenith	**WYSE**

COMPUTOWN

Five Easy Ways to Upg



Save money with this hot new card from PacificData Products which allows you to add more memory as you need it. Unlike other cards of fixed memory size that must be entirely replaced when you need more memory, you can add more memory chips as needed. One megabyte provides enough memory for full-page 300 dpi graphics, and adds memory for several downline-loaded fonts. Later if you need more font storage for additional typefaces, or extra-large point sizes, then you can upgrade the card by converting to 1 megabit chips. Standard configurations are 1, 2, or 4 megabytes (the HP maximum). Chip industry experts generally agree that the price of 1 megabit parts will fall. Therefore, if you don't need the full 2 or 4 megabytes yet, you'll save money by waiting.

Now a large library of extremely high quality fonts is available with Bitstream Fontware. Fontware can produce both screen and printer fonts in any point size. Bitstream's programs integrate with Ventura and Microsoft Windows to make adding new fonts easy. Ask us to send you a brochure of the popular Bitstream faces now available.

3) Add Postscript with a JetScript Upgrade

Have cake and eat it too! Yes, now with JetScript you can have your HP and print PostScript too. You can use the printer in either its normal HP mode or you can use the printer in PostScript mode — all under host-software control. If your application insists on having real Adobe PostScript, then the JetScript board from Laser Connection is the most economical way to get it.

JetScript from Laser Connection

ade Your HP LaserJet

BDT Feeder for LaserJet Series II

4) Add a Dual-bin Feeder with Envelope Capability

The BDT company, based in Switzerland, has been designing and manufacturing automatic cut-sheet feeders for all types of printers for many years. This latest addition to their product line brings dual-bin and envelope feed capabilities to the HP Series II. Other versions are available for other laser printers. Call The Printer Works for more information and a personal demonstration.

LaserMaster CAPCard -The master of faster

5) Add Speed and Capabilities with LaserMaster's CAPCard™

Save time with a high performance LaserMaster controller. The LaserMaster CAPCard boasts the fastest printing from Ventura Publisher, Aldus PageMaker, and AutoCAD. Not only is it faster — its output is PostScript-compatible. By using BitStream's latest fonts with PostScript-compatible widths, which are *Scaled on the fly by LaserMaster's Driver,* high-speed LaserMaster output can be used for proofing of documents that will be sent to high-resolution PostScript typesetters. Only LaserMaster offers PostScript-compatible output without the overhead of PostScript. The LaserMaster software uses your PC's CPU with its own high-speed graphics processor — so the faster your machine, the faster the LaserMaster-driven printer will print.

BUY FROM A KNOWLEDGABLE SOURCE...

THE PRINTER WORKS

3481 ARDEN ROAD, HAYWARD, CA 94545
(415) 887-6116 LOCAL, **(800) 225-6116** CA, **(800) 235-6116** OUTSIDE CA

IBM Software for $3.49

Thousands of IBM/Compatible Public Domain and Shareware Programs Are Available from the Micro Star Library, and Priced at **Only $3.49**

ORDER TODAY on our Toll Free Phone Lines

ORDERS SHIPPED OUT SAME OR NEXT DAY

GAMES

JET SET FLIGHT SIMULATOR (102) Be a jet pilot at the controls.
GLOBAL THERMAL NUCLEAR WAR (105) Frightening possibilities.
ARCADE GAMES (106) Has Kong, a 3-D Pacman, Bricks, Pango. (Requires color.)
BASIC GAMES (107) Pacman, Lunar Lander, Startrek, Meteor, Breakout, and others.
CARD GAMES (109) Canasta, hearts, draw poker & bridge.
STRIKER (110) Defender-like game. "Top Gun" in space.
FLIGHTMARE (112) Futuristic fighter pilot game. (Requires color graphics adapter.)
SLEUTH (117) Who done it?
MONOPOLY WITH GRAPHICS (118) Color or monochrome.
DUNGEONS AND DRAGONS (119)
GAMES IN BASIC (124) Lander, biorhythms, desert, Phoenix, Star Wars, others.
TRIVIA GAME (130-131) (2 disks) Extensive trivia game.
PROFESSIONAL BLACK JACK (148) Become a pro.
QUEST (152) Role playing adventure fantasy game. (Requires color.)
PINBALL (153) Many games. Also includes a great maze game.
BRIDGE PAL (171) Complete game of contract bridge, with tutorial.
FENIX (193) Just like the famous arcade game.
SPANISH HANGMAN (196) Fun way to learn Spanish.
BONZOWARE (199) Multi-faceted entertainment for adults only.
KID-GAMES (GAM 8) Animals math, clock game, alphabet, etc.
3-D CHESS (GAM9) Incredible. 2D and 3D. Many levels. Play back moves, store games.
WIZARD'S LAIR (GAM14, GAM15) (2 disks) Like Dungeons & Dragons, w/maps, sorcery, etc.

EDUCATION

FUNNELS AND BUCKETS (201) A fun way to learn basic math.
MATHPAK (202) Tutorial with lessons in higher mathematics.
PC-TOUCH (204) Typing tutorial.
EZ-SPELL (206) Checks spelling.
EDUCATIONAL PROGRAMS (207) Preschool and elementary.
BASIC TUTORIAL (208) Learn programming with BASIC.
BEGINNING SPANISH (211) Tutorial
BIBLEQ (214) The Bible with this question-answer tutorial.
SPANISH II (232) Sequel to #211.
AMY'S FIRST PRIMER (248) Teaches alphabet, numbers, shapes, colors, counting, etc.

MUSIC

PIANOMAN 3.2 (301) Turn your keyboard into a piano. Fun!
PC-MUSICIAN (302) Compose, save, and play music.

WORD PROCESSING

PC-WRITE 2.71 (401-402) (2 disks) Latest version of this popular program w/spelling checker.
NEW YORK WORD (403-404) (2 disks) Powerful split screen editing, mail merge, etc.
LETTER WRITER (405) The easy way to write letters! Popular.
PC-STYLE (413) Analyzes style and readability of your writing. Works with Wordstar, PC-Type, & ASCII.
PC-TYPE+ (421-423) (3 disks) Excellent. Has mail merge, 100,000 word spelling checker. Interfaces with PC-File +; PC-Style.

SPREADSHEETS

EZ-SPREADSHEET (509) Easy but powerful. For the beginner.
PC-CALC+ (512-514) (3 disks) Jim Button's famous Lotus clone.

SPREADSHEET TEMPLATES

LOTUS MACROS (601) Save hours of work. (Requires Lotus 1-2-3)
LOTUS SPREADSHEET TEMPLATES (602) Ready made. (Requires Lotus 1-2-3)
TECHNOJOCK TUTORIALS (626) Teaches Lotus and dBase, menu-making, etc. Excellent.

ACCOUNTING AND FINANCE

PC-GENERAL LEDGER (701) Popular accounting system. Easy!
MR. BILL (702-703) (2 disks) For billing customers; invoices, client reports, audit trail.
CPA LEDGER (706-708) (3 disks) Complete GL.
PC-STOCK (712) Analyze market trends. Includes graphics.
PC-PAYROLL (714) Menu driven payroll system.
PERSONAL FINANCE MANAGER (715) Household budget manager. Keep track of checking, savings, investments.
CHECKBOOK (752) Complete system with online help.
EMPLOYEE MANAGEMENT (793) Teaches principles of the famous One-Minute Manager.

DATABASE PROGRAMS

PC-FILE+ 2.0 (801, 805, 837) (3 disks) Rated better than dBase III+ by Consumer Reports.
PC-GRAPH (802) Creates graphics directly from PC-FILE.
FILE EXPRESS 4.0 (803-804) Powerful system. Allows 32,000 records. Sorts up to 10 key fields.
NEWBASE (809) User-friendly menu-driven DB system.
DBASE III ROUTINES (815) Over 60 helpful dBase III routines.
WAMPUM (824-825) (2 disks) Dbase III clone. dBase III compatible

GRAPHICS

KEYDRAW CAD SYSTEM (1001-1002) (2 disks) Popular. (Requires color graphics.)
3-D (1003) Create and edit 3-D objects. (Requires color graphics.)
SIDEWAYS (1007) Prints your text sideways.
ANIMATOR (1011) Create animated pictures on your PC.
SIMCGA (1027) Use with Hercules graphics card/compatibles to run programs requiring CGA.
READ MAC (1041) Digitized pictures of Ashley, Cheryl, Brooke and Spock. ADULTS ONLY!
FINGERPAINT (1050) Use keyboard or mouse to draw. Like MacPaint. (Requires CGA or EGA)
DANCAD 3-D (1051, 1052) (2 disks) Create 3-D graphics. Rotate, magnify, etc. Runs on CGA, EGA, or Hercules/compatibles.

TELECOMMUNICATIONS

Q-MODEM 3.0 (1101-1102) (2 disks) Fast modem program.
RBBS-PC (1107-1109) (3 disks) Multi-user BBS.
PROCOM 2.42 (1112-1113) (2 disks) Hacker's delight. Redial capability. Latest version.

SECURITY/HACKING

UNPROTECT PROTECTED PROGRAMS (1202) Make backups of protected software.
UNPROTECT II (1203-1204) (2 disks) More ways to backup commercial software.
UNPROTECT III (1205) Unprotect Softguard protection.
UNPROTECT IV (1206) More programs you can unprotect.

DOS

DOS TUTORIAL (1301) Teaches you to use DOS.
DOS HELP (1302) Convenient help when a problem arises.
STILL RIVER SHELL (1304) Run DOS commands from a menu. Makes using DOS easy.
BATCH FILE TUTORIAL (1305) Utilize batch file processing.
DOS TIPS (1311, 1314) (2 disks) Advanced tutorial.

BASIC

PC-PROFESSOR (1401) BASIC tutor.
BASIC PROGRAM GENERATOR (1402) The menu driven way to write programs.
SWISS ARMY KNIFE (1406) Tools for programming in BASIC.

APPLICATIONS

FORM LETTERS (1907) Commonly used form letters and business applications.
EZ-FORMS (1908) Make forms to meet different needs.
MAIL MASTER (1910) Create mailing lists. Print letters and labels.
ASTROLOGY 9.4 (1916) Calculate your own chart. Prints wheel.
HOME INVENTORY (1966) Track all your possessions.
LOTTO MASTER (1981) Play the lotteries w/scientific methods.
MEMBERSHIP SYSTEM (1984) Great for clubs, churches, etc.
FAMILY HISTORY (2203-2204) (2 disks) Create files and geneaological reports.
DR DATA LABEL (2327) Powerful mailing list program. Customize labels to size and format.
CITY DESK (2513) Simple desktop publisher.

UTILITIES

DESK COMMANDO (2607) Better than Sidekick. Many features.
EPSON PRINTER UTILITIES (2705) Change print modes on Epson or compatibles.
LINCOMATIC BANNER (2714) Creative banner making.
LIGHTNING PRESS (2718) Printshop clone. Includes graphics for greeting cards, letterheads, posters, newsletters, etc.
MASTERKEY (2805) Like Norton's. Retrieve deleted files.
AUTOMENU (3003) Make PC menu driven. Multiple passwords.
PC LABS BENCHMARK (3039) Comprehensive testing. Compare computers before you buy.

RELIGION

THE BIBLE (3301-3306) (6 disks) Old Testament, King James version.
THE BIBLE (3307-3308) (2 disks) New Testament, King James.
WORD WORKER (3309-3310) (2 disks) Bible search program. New Testament, King James.
BIBLEMEN (3330) Excellent Bible quiz program.

MICRO STAR

POST OFFICE BOX 4078 • LEUCADIA, CA 92024-0996

HOURS: Monday - Saturday 7 AM - 5:00 PM, Pacific Time

TERMS: We accept MasterCard, VISA, Checks (allow checks 10 days to clear), Money Orders, and COD (add $4).
MINIMUM ORDER: 5 Disks, $3.49 per disk. For 3½" format add $1/disk.
SHIPPING & HANDLING: $3.50 (Total per order).

CALL TODAY FOR FREE CATALOG

NATIONAL 800-443-6103
CALIF: 800-443-7430
FOREIGN: 619-436-0130

CLONING

THE PS/2

Chips And Technologies' Ron Yara On Proprietary Technology And The Diverging PS/2 And AT Standards

By Mary Eisenhart and Rob Beauchamp

If you've ever wondered where the heart of your PC clone or compatible came from, chances are it came from Chips And Technologies of San Jose. Except for those machines manufactured by Compaq, the vast majority of PC-AT clones built since 1985 have Chips And Technologies chipsets in them. Chips has has grown to dominate the OEM marketplace by providing higher performance at a lower price than IBM.

Then came the PS/2 systems from IBM. Frustrated at having its market share eroded by clone manufacturers who took similar off-the-shelf parts that comprised the PC and offered the computers at significantly lower prices, IBM created a line of computers that contained proprietary technology. Backed up by patents and copyrights and a horde of legal eagles, it appeared that IBM had developed a clone killer.

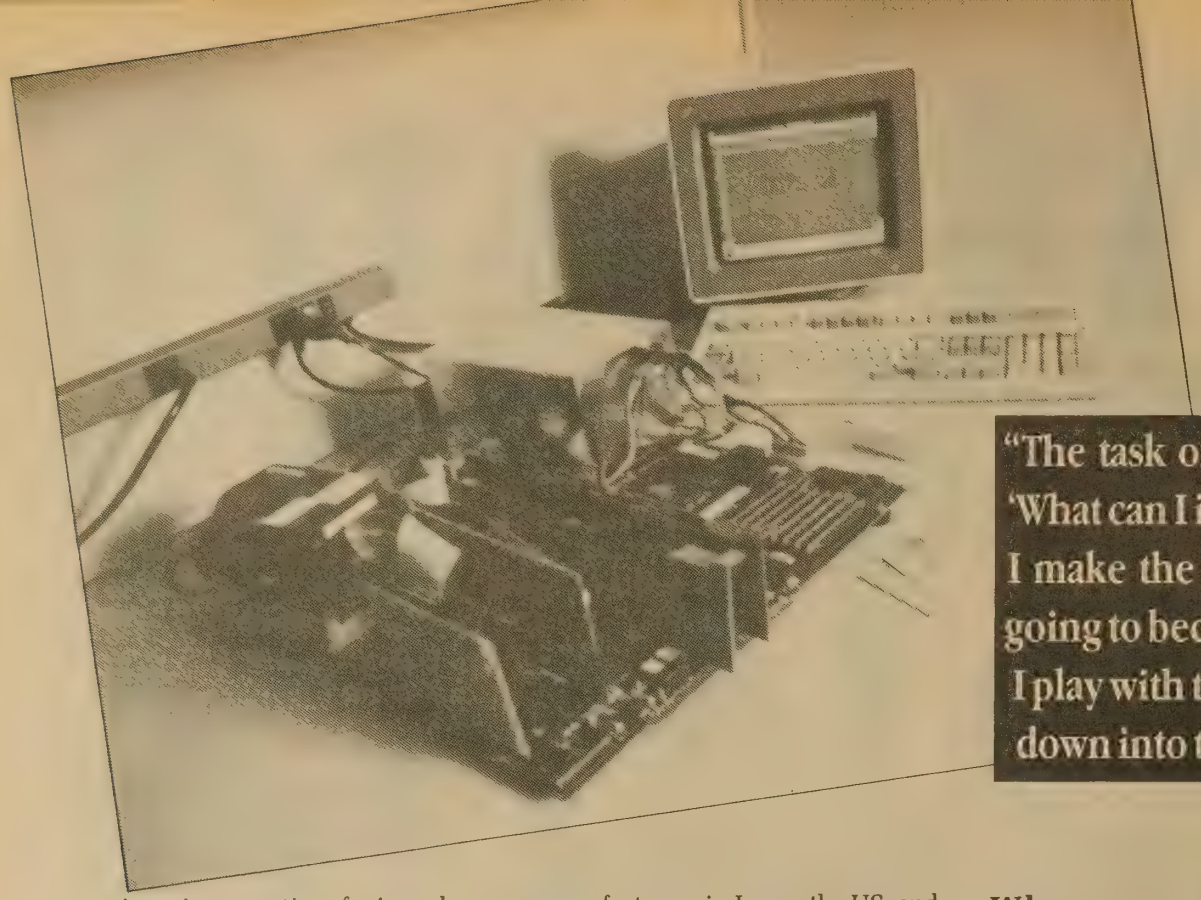
Who would be the first to clone the PS/2 and risk the wrath of IBM? the industry wondered.

An hour and a half after IBM announced the PS/2, Chips And Technologies bought its first PS/2 models and began the difficult process of reverse engineering the new computers. The reverse engineering was made even more difficult by the dearth of documentation provided by IBM. A year later Chips And Technologies is nearly ready to put its PS/2 chipsets on the market.

While on the surface it appears that Chips And Technologies is asking for trouble, the legal situation, not surprisingly, is much more ambiguous. IBM is licensing the utility patents on its proprietary technology. IBM has stated publicly that it is not interested in monopolizing the personal computer marketplace, but rather re-establishing its eroding market share. While not allowing clone makers to copy its designs directly, it is in effect licensing the right for companies like Chips And Technologies to make compatible chipsets using original designs.

This is just fine with Chips, which prides itself on re-engineering chipsets to be faster, use less chips, cost less and still provide 100% compatibility.

The key, according to Ron Yara, vice president of business development, is maintaining a dialogue with IBM in order to ease the process of putting a PS/2 clone on the market. He maintains that with the proper licensing, the proper engineering and the proper agreements with IBM, chipset and clone manufacturers can successfully offer a PS/2 compatible without the legal wrangling many assume is inevitable.



"The task of defining chipsets now is no longer 'What can I integrate, function-wise?' but 'How do I make the functions play together?' and what's going to become increasingly important, 'How do I play with the operating system?' I can't just look down into the hardware, I have to look upward."

A major question facing clone manufacturers, however, is will there be a market for PS/2 clones? Although sales of the new PS/2 are brisk, so are sales of AT class machines. Many businesses simply don't wish to move to the new machines due to the investments already made in the older technology.

What Yara predicts, according to talks with OEMs, is that the clone manufacturers will offer the PS/2 clones along with the AT machines, thus providing customers with a full range of low cost options.

Since Chips and Technologies does business mainly with OEMs, the average user may not be familiar with your company. Could you give us a little history?

The company itself was founded in January of '85. The basis for the company was developing standard integrated chipsets for microcomputer systems. The four major areas that we focused on were systems logic, graphics, communications, and mass storage or I/O functionality. The whole idea and the whole direction was to have complete solutions, because these are the major functions that make up any microcomputer.

By systems logic we refer to things including control of the processor itself, memory control, systems peripherals, DMA, I/O, keyboard interface, etc. Graphics is straightforward. One of the first things we came out with was EGA, then VGA, and also we were expanding that into flat panel displays. Communications, and then the I/O area.

In terms of structure of the company — as a semiconductor company we do not have any foundry or any processing. We don't have any wafer-fab or back-end packaging, testing, etc. For all of that we use outside foundries. We contract them with manufacturers in Japan, the US, and Europe — Yamaha, Toshiba, Fujitsu, NEC in Japan, National and Texas Instruments in the US, SGS in Europe. The goal behind that was, again, thoroughly straightforward. It's a huge investment to put up a front end and a back end — 50 to 100 million dollars. And it turns out in this kind of business that that is not where the value added is. The value added is here, in the design itself, in the integration of these functions within the microcomputer, and then the integration of these functions with the operating system and the applications environment.

So the company was started on that basis. Today we have 240 people. Our most recent quarter, which was the quarter ending in December, which is the second quarter in our fiscal year, which is June 30 — the second fiscal quarter was 32 million, first fiscal quarter was about 29, and analysts are saying somewhere in the 130s for the year, which is going to be up from 80 million in the previous fiscal year.

The basis for the business, where the revenue is coming from — in fiscal '88, better than 50% will come out of systems logic. In fiscal '87, better than 50% came out of graphics. The primary reason was that graphics, when we started the company, was a marketplace that was sitting there and waiting, and it was primarily an add-in card market, which meant you could get into it quickly and the business would grow very quickly. Systems logic business — the gestation period is longer by probably a year to a year and a half, because not only are you building the motherboard, but the chassis, the power supply, the full enclosure, and then working that through the channels.

So today we're in the dominant position in systems logic, for AT-compatible or 286- and 386-based systems.

Who are some of your clients?

Clients that have products that are announced — Tandy, NEC, Hewlett-Packard, Wang Labs, Multitech in Taiwan, Mitek in Taiwan, Apricot, Dell Computers, otherwise known as PCs Limited — these are all 286- and/or 386-based products.

DOS-based?

Yes. By some independent analysts, we have 75 to 80% of the compatible market, if you look at the number of customers.

Do they use Phoenix BIOS?

Yes, a lot of them use Phoenix BIOS along with our chipsets.

But you don't deal with it at that level?

No. We work with Phoenix. As a matter of fact, on our PS/2 road show and press announcement, Phoenix was there indicating that for the PS/2 product family, they are developing the PS/2 compatible BIOS that will work with our chipsets.

Looking at it from a technology standpoint, how we are getting to PS/2 products — in 1985 we brought in systems expertise, chip design or silicon integration expertise, and CAE tools to do chip development. And it was that combination of systems expertise — mainframe and workstation kinds of systems architecture, systems design — marrying that with chip design, real hardcore device and logic design, and using the tools, that allowed us to develop the first compatible chipset solutions. In 1985, when we introduced the AT 286 chipset, and the EGA, we solved the compatibility problem, we provided a complete integrated solution for that chipset, and also at the same time were able to increase performance.

This was the basis for platforms for AT compatibles as well as EGA, upon which most of the major manufacturers are building their product. In 1986 we extended the AT capability into 386. We introduced the first 386-compatible chipset, as well as taking EGA to a single-chip solution, supporting backward compatibility.

With the 386 we allowed users to run from 16 to 20 MHz, still maintaining AT compatibility. In order to do that we started with that platform which we developed in 1985, compatibility, and started to extend and improve the architecture. One of the ways was to decouple the processor, the CPU, from I/O. I/O was bound to 8 or 10 MHz operation, because that's where the compatible cards plug in. Processors were getting faster and faster — the 386 now runs at 16-20 MHz, soon to be 25 MHz. So it was important to be able to develop an implementation of the architecture that allowed the processor to move up in speed while retaining I/O compatibility. We were able to do that with the 386 chipset by introducing an asynchronous CPU, memory and I/O architecture. We also improved the system memory control on the microcomputer in order to improve performance without taking a huge penalty in buying very expensive DRAMs, by introducing page-interleaved memory control. And then we started building backward compatibility into EGA, providing CGA compatibility, monochrome and Hercules. That was in 1986.

In 1987 we again built on this experience and expertise to bring high performance back into the 286 architecture. We started by introducing the 386 architecture for AT compatibles, and then came back in and enhanced the 286 chipset, by what we called the New Enhanced AT-compatible (NEAT) chipset — 286, 16 MHz operation, EMS 4.0 support, bringing more robust memory control — again, expanding functionality.

Also we introduced the VGA chip-

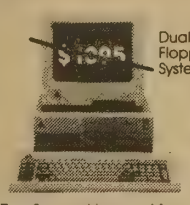
AMERICA'S #1 SOFTWARE DEALER PROGRAM DISCOUNT CENTER

FOUR WAYS TO DRIVE A MODEL "D"®

Single Drive System ~~$995~~
One 5¼" 360kb floppy disk drive

And no matter how you drive it, every Model "D" comes complete with:

- High-resolution monochrome monitor
- Selectric®-style keyboard
- 8088-2 Microprocessor (4.77 MHz and 7.16 MHz)
- 512K RAM expandable to 768K on the motherboard
- Open socket for 8087 co-processor
- At least three full-size IBM®-compatible expansion slots
- Serial and parallel ports
- Color Graphics and Hercules™ Monochrome Graphics Emulation
- MS-DOS® and GW BASIC®



Dual Floppy System

Two floppy drives and free Leading Edge® Word Processing with Spelling Correction

Fixed Disk System

A 30MB fixed drive, a single floppy drive and Leading Edge Word Processing with Spelling Correction

CALL FOR BEST PRICE

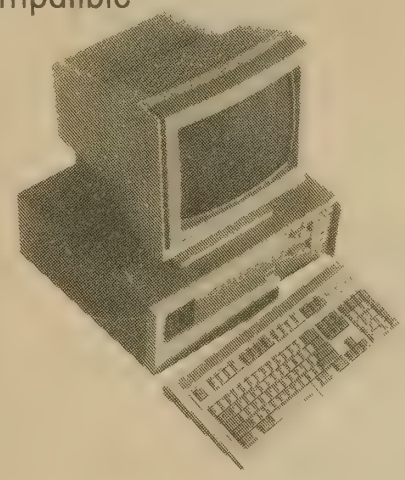
LEADING EDGE® AUTHORIZED DEALER

BEST PRICE WITH 640K 20MB HARD DISK

Leading Edge and logo and Model "D" are registered trademarks, and Infinite Memory System, Infinite Memory Drive and Infinite Memory Cartridge are trademarks of Leading Edge Products, Inc. Bernoulli Technology is a trademark of Iomega, Inc. Hercules is a trademark of Hercules Computer Technology, Inc. IBM and Selectric are registered trademarks of International Business Machines Corp. MS-DOS and GW Basic are registered trademarks of Microsoft Corp.

AST PREMIUM/286

#1 RATED AT
"EDITOR'S CHOICE P.C. MAGAZINE"
50% faster than 8 MHz IBM PC AT. 10 MHz, 0 Wait
100% Compatible



IN STOCK NOW
Authorized Retail Dealer
CALL FOR BEST PRICE

AST RESEARCH INC.

WordPerfect 4.2 with **FREE** Upgrade to 5.0
$235
WordPerfect 5.0
$299

YOUR CHOICE
3½ ⇦ ⇨ 5¼
NO PROBLEM!

Spreadsheet Special!
Quattro
$145
Lotus 1-2-3
$299
Excel
$319
PlanPerfect
$395

Complete PC Hand Scanner
List $249
Special $199
While Supplies Last!
PFS Plan
$75
DataPerfect
$330

• GEM Desktop Publisher and the complete GEM line make your IBM PC emulate the Macintosh • We have the complete GEOS line **IN STOCK** for Commodore • Apple, Macintosh, IBM and Commodore software in stock. Call for your needs now!

Apple and Macintosh are trademarks of Apple Computer, Inc. IBM is a trademark of International Business Machines, Inc.

PRICES SUBJECT TO CHANGE.

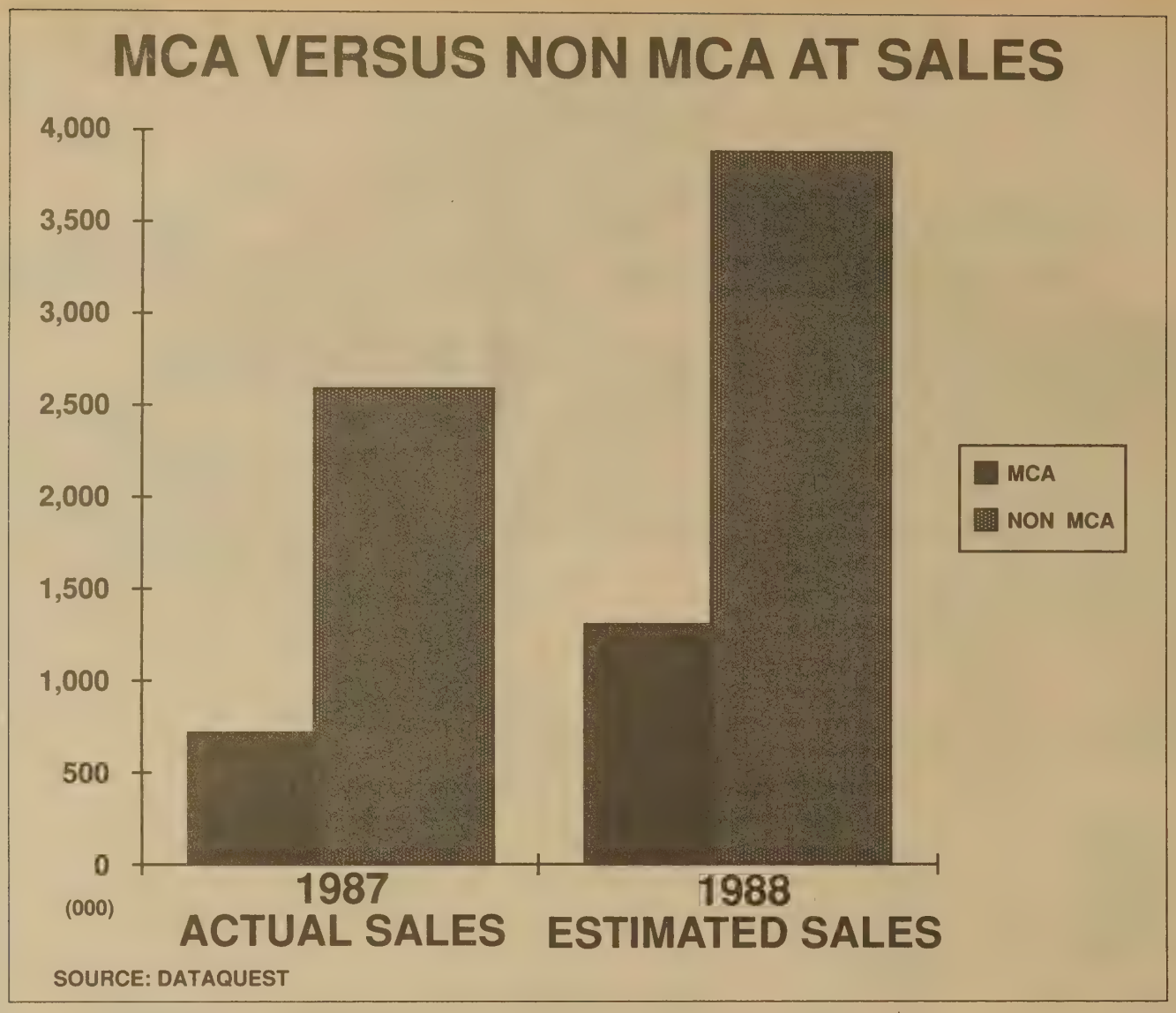
Software City®

1500 Monument Blvd.
Concord, CA 94520
(415) 676-6662
Mon-Sat 10 AM-6 PM

OVER 100 STORES NATIONWIDE
2 STORES SERVING YOU LOCALLY

CORPORATE ORDERS PLEASE CALL (415) 676-2516

155 Main Street
San Francisco, CA 94105
(415) 543-0543
Mon-Fri 9 AM-5:30 PM
Sat 10 AM-4 PM



set — that's started shipping. This one was a BIOS-level compatible chipset, which is supported in *Windows* 2.0, -386, and also we're working on 1.0 of OS/2 with Microsoft currently.

All of that expertise went into the PS/2 chipset, plus the experience of, today, more than three million chipsets shipped into the marketplace. These are the kinds of capabilities and functions we're building into the PS/2 chipset itself.

Product-wise, for chipset solutions we have the PC compatible solutions, as well as PS/2 compatible solutions. We introduced this set at the end of January. So we cover the low end, mid-range and high end with our products for both AT and PS/2 compatibles, as well as graphics in both areas.

The whole approach that we take in our PS/2 strategy — and it's really an overall strategy for the company — is that we provide, again, complete solutions. That is, based on compatibility, but that's just the platform. It's a requirement, it's not a value added. If you can't do that, then you're not really in the business. What we focus on is the added side, what we can do in terms of innovation.

We have to be able to provide that value added. We categorize that in three areas — performance, improved performance, certainly improved integration, number of components, and functionality in the chipsets. That's where we focus our PS/2 as well as our other product areas.

The compatibility side is very straightforward. In general the process that we go through, which is true for the AT chipset but it's certainly much more true for the PS/2 compatibles — we first start with logic extraction. That's kind of a nice euphemism for "we reverse engineer the system, including the components." So we have a register- and gate-level understanding of exactly what was going on within the chip as well as on the system board. 'Cause one of the things that IBM did a very good job of doing is not documenting their system.

The result of that logic extraction is the ability to implement — a *requirement* to implement both documented as well as undocumented functions. One of the important areas in documented functions is to make sure that the documentation reflects the hardware, because quite often it won't. Not knowingly, but because those things happen. The Micro Channel itself is a very well-defined bus. It's proprietary, but it's one of the things that they did a very good job of doing, documenting it, because they wanted it, from an add-in card standpoint, to become a standard. Therefore we had to make sure we were in full compliance with that specification when implementing the bus. We also had to do systems-level analysis, again because there is no theory of operation for the system, there is no system schematic for PS/2. That was important. And finally compatibility testing.

Again, this is part of our compatibility process, that we've already had in place. Today we have systems up at Microsoft for PCs that contain our 286 original AT chipset, our NEAT 286 chipset, as well as our 386 chipset. We ship different boxes up to Microsoft, put them into the development groups for OS/2, for DOS, for Presentation Manager/*Windows*, and for XENIX. The purpose of that is to allow Microsoft to do compatibility testing on new generations of software. Because our OEMs are their OEMs, and since we've been successful in penetrating those OEMs, it was important for both companies to do this kind of compatibility testing.

We are scheduled to do the same kind of compatibility work with Microsoft and PS/2. We will ship them fully configured systems up there that have our Model 50 as well as Model 80, 286 and 386 chipsets, to cover OS/2, DOS, XENIX, Presentation Manager, *Windows*. And we will also start putting systems into their applications group, people that do *Word, Works*, whatever else they're working on. Again, with the same goal, compatibility testing.

That takes care of what is required from the customer, which is "how do I make it compatible?" This is true for all of the products we do, including PS/2.

The other thing that we do is how we get the value added, the innovation. One of the ways we look at it — simple and straightforward. Integration, integration, and integration. And there we get fewer-parts compatibility and improved performance, just by improving the process technology, reducing the components. With PS/2, IBM started to put more of the functions onto the motherboard — graphics, I/O, as well as the systems logic. It was important, and it is important, therefore, to look at what we call functional integration, which is tightly coupling I/O with graphics as well as systems logic on the motherboard.

What IBM did with graphics, for example, is to physically put it on the motherboard, without logically improving access by the processor into display memory. There's a lot of improvement that you can gain by doing functional integration, mainly in the area of performance. Remove some of the bottlenecks, because you can make a different set of assumptions, given that the functions are physically close together so you can logically tie them.

The third area of integration is what we call systems integration. In this we are able to do things that are much more operating-system specific. With the CAE tools that we have, with systems design capability, we're able to move silicon a lot faster than they can move software. And basically that says we can fill the contours of software with silicon, as opposed to making it the other way around, so that you do become more operating system-specific, as well as applications environment, *Windows* or PM — again, you can do things in silicon that make PM run faster. As well as building in compatibility. So the task of defining chipsets now is no longer "what can I integrate, function-wise?" but "how do I make the functions play together?" and what's going to become increasingly important, "how do I play with the operating system?" I can't just look down into the hardware, I have to look upward.

It has to be optimized for a particular environment, so to speak.

That's right.

Is it just that your company has better engineers, or why didn't IBM do this in the first place?

I guess in one sense I'm not sure. (laughs) I know we have very, very good engineers. I think we have a good mix of engineers.

I'll give you the difference between a traditional semiconductor company and ourselves. A traditional semiconductor company would look upward in terms of the tasks it has to do. The first think it'll look at is "what can I do in terms of integrating the next set of functions?" The thing that they tend to pay least attention to is what's it going to mean to the operating system.

TEK COMPUTER

THE VALUE LEADER IN COMPUTERS

AST PREMIUM/286
- 1.2 MB Disk Drive
- 20 MB HD
- Enhanced Keyboard
- Monographic System

CALL

AST Laser PostScript **Sale $2999**

MACINTOSH™

Mac SE 2 Dr* $2099
Mac SE 20 MB* 2599
Mac Plus ..... **CALL**
Mac II Mono System 3599
Laserwriters SE/NTX **.Call**
*Includes standard keyboard

NOW HERE TEK COMPUTERS HIMS 386
20 MHz System Call For Specs & Prices

LEASE TO OWN
Name brand computers costing $1000.00-$10,000.00
From $32 per month to $299 per month, subject to credit approval

COMPUTERS

AST

Model 80	Call	Model 170	Call
Model 90	Call	Model 300	Call
Model 120	Call	Model 340	Call
Model 140	Call	Model 390	Call

WYSE

Model 2108	$1082	Model 2214	$1568
Model 2112	$1568	Model 3216	$2658

IBM PS2

Model 30, 2 drives	$1275	Model 60, 40 Meg	$3399
Model 30, 20 Meg	$1690	Model 60, 70 Meg	$4391
Model 50	$2624	Model 80, 40 Meg	$4699
Model 80 115 Meg	$8295	Model 80, 70 Meg	$5399

TOSHIBA LAPTOPS

1100 Plus	$1529	1000	$888
3100, 20 Meg	$3099	1200	$2370
3200	Call for Price	5100	$5499

NEC LAPTOPS

NEC Multispeed HD	$2399
NEC Multispeed EL	$1525

ZENITH LAPTOPS

Z-181	All Zenith
Z-183	Models
Z-183, 20 Meg	In Stock
Z-386	Call for Price

Other Computers Available Upon Request

Compaq

Deskpro, 2 drives	$1165
Deskpro, 20 Meg	$1495
Deskpro, 40 Meg	$1578
Deskpro 286, Model 1	$1899
Deskpro 286, 40 Meg	$2499
Deskpro 386, 40 Meg	$4439
Deskpro 386, Model 60, 20 MHz	$5549
Deskpro 386, Model 130, 20 MHz	$7059
Deskpro 386, Model 300, 20 MHz	$9168
Portable, 2 drive	$1574
Portable II, Model 4	$2999
Portable III, Model 20	$3577
Portable III, Model 40	$4159

PRINTERS

Citizen

120D	$158	MSP40	$307
124	$484	MSP45	$448
180D	$177	MSP50	$374
224	$657	MSP55	$478
MSP10	$275	Premiere 35	$466

IBM

Pro Printer II	$399	Quietwriter III	$1125
ProPrinter X24/XL24	$489/639		

DICONIX

150P by Kodak	$309
300	$499

NEC

Color P6	$539	Color P7	$699
P6 80 col	$439	P7 136 col	$609
P5XL	$974	P9XL	$1068
P2200	$364	8850	$1097
3550	$729		

EPSON

EX800	Call	LX800	All
EX1000	for	LQ850	Epson
FX86e	Best	LQ1050	Models
FX286e	Price	LQ2500	In Stock

Call for Accessories

OKIDATA

Okimate 20	$122	ML182P	$229
ML 182S	$258	ML 192 Plus	$314
ML 193 Plus	$456	ML 292 Plus	$377
ML 293 Plus	$516	ML 294	$747
ML 393	$979		

TOSHIBA

P321SL	$499	P351-2 S/P	$935
P341SL	$668	P351-2 Color	$1199
P351	$650	P351SX	$1129

LASER PRINTERS

AST Turbo Laser	$2999
H-P Laser Jet Model 2	$1649
H-P Deskjet	$799
NEC LC890 Postscript	$3358

MODEMS, COMMUNICATIONS & EMULATIONS

AST 5251-11 Plus	$619
Everex 1200B/2400B	$109/199
Hayes 1200/1200B	$289
Hayes 2400/2400B	$424
V9600/2400	$974/674
IBM 1200	$309
Smartcom/Crosstalk	$58/96

NOVELL NETWORKING

STARTER KITS

Western Digital 3 Node LAN kit w/Western Digital software	$924
G-Net 86 w/keycard	$1593
Arcnet 86 starter kit	$1811
Ethernet 86 w/keycard	$2152
Entry-level 286 starter kit, 4 users	$599
Entry-level 286 starter kit, 8 users	$Save

Kits include 2 network cards, keycards, software and manuals. Call for pricing on other kits.

INTERFACE CARDS

Arcnet PC110 LANBoard	$199
Arcnet PC210 LANBoard	$277
Ethernet interface connector	$349
Ethernet Plus board (for 286)	$724
G-Net interface card w/cable	$319

ACCESSORIES

Arcnet Passive Hub	$85
Arcnet Active Hub	$549
Novell 286 software w/keycard	$1569
SFT Netware Level I	$2148
Nondedicated Netware Software 286 w/keycard	$1569

MONOCHROME MONITORS

Amdek 310A/410A	$129/149
Amdek 1280	$679
Compaq monochrome monitor	$188
IBM PS2 mono monitor	$199
NEC Multisync GS	New Model
PGS Max 12E amber color	$139
Samsung Green or Amber	$89

COLOR GRAPHIC MONITORS

Amdek color 600T/722	$349/444
IBM PS2 color monitor	In Stock
IBM PS2 enhanced color monitor	Save
Magnavox 14" RGB comp	$238
PGS HX-12 Plus	$417
Samsung color	$289

VGA & EGA PRODUCTS

EGA MONITORS

Compaq enhanced graphics monitor	$584
NEC Multisync II	$599
NEC Multisync Plus	$888
NEC Multisync XL 19 inch	$1974
Casper	$425
Sony Multiscan	$625
AST EGA	$521

VGA DISPLAY CARDS

AST VGA	$314
ATI VGA VIP	$307
Genoa VGA	Save
Paradise VGA	$297
Quadram Ultra VGA	$299
Compaq VGA	$449
Video-7 VGA	$314

EGA DISPLAY CARDS

ATI Wonder Card	$199
Genoa Super EGA Hi-Res 800x600	$249
NEC GB-1 640x480	$249
Orchid EGA card	$329
Paradise Auto Switch EGA 350	$179
Paradise Auto Switch EGA 480	$199
Everex EGA	$199
Quadram Prosync	$314
Video 7 Vega Deluxe	$268

MONITOR INTERFACE CARDS

Genoa Spectrum (color monographic w/p)	$168
Hercules color card w/p	$146
Hercules monographics plus w/p	$179
Hercules Incolor board	$329
Monographic w/p	$89

DRIVE CARDS

Miniscribe 30 Meg Flashcard	$425
Mountain 20 Meg/30 Meg	$549/819
Plus Development 20 Meg	$569
Plus Development 40 Meg	$836
Western Digital 20 Meg	$399

DRIVES FOR ATs & 286s

Miniscribe 40 Meg 28ms	$616
Miniscribe 80 Meg 28ms	$895
Priam 40 Meg hard disk	$669
Priam 60 Meg hard disk	$798
Priam 130 Meg hard disk	$1989
Seagate 4038 30 Meg hard disk	$499
Seagate 4051 40 Meg hard disk	$599
Seagate 4096 80 Meg hard disk	$895
1.2 floppy drive	$110

FLOPPIES, DRIVES & TAPES

1/2 height floppy drive	$99
Miniscribe 20 Meg 1/2 height w/cont.	$329
Miniscribe 30 Meg 1/2 height w/RLL	$345
Seagate 20 Meg 1/2 height hard drive	$289
Seagate 30 Meg 1/2 height w/RLL	$309
Seagate 40 Meg 1/2 height	$492
Everex 60 MB int.	$654
Everex 60 MB ext.	$759
Everex 125 MB ext.	$1345
Iomega Bernoulli 10+10	$1395
Iomega Bernoulli 20+20	$1629
Iomega 20 Meg 1/2 height int.	$995
Iomega 20+20 external 5 1/4	$1795
Irwin 10 Meg tape backup	$259
Irwin 20 M/40 M internal tape	$399/539

MISC. & ACCESSORIES

A-B switching box (par or serial)	$39
Kensington Masterpiece	$99
Kensington Masterpiece Plus	$118
Keytronics 101	$104
Quadram Micro Fazers	$140
Printer Cable (IBM to Centronics) 6 ft.	$14
XT power supply 150 watt	$69

Software

Lotus 1-2-3/Hal/Metro	$299/120/85
Symphony	$410
Framework 2	$365
D Base III+	$395
WordPerfect 4.2	$219
Microsoft Windows	$69
Xerox Ventura Publisher	$499
Aldus PageMaker	$465
Multimate Advantage	$440
Migent Software	LOW

CHIPS

8087-2/8087-3	Best Prices Call
80287-6/-8/-10	Best Prices Call
80387-16/80387-20	Best Prices Call

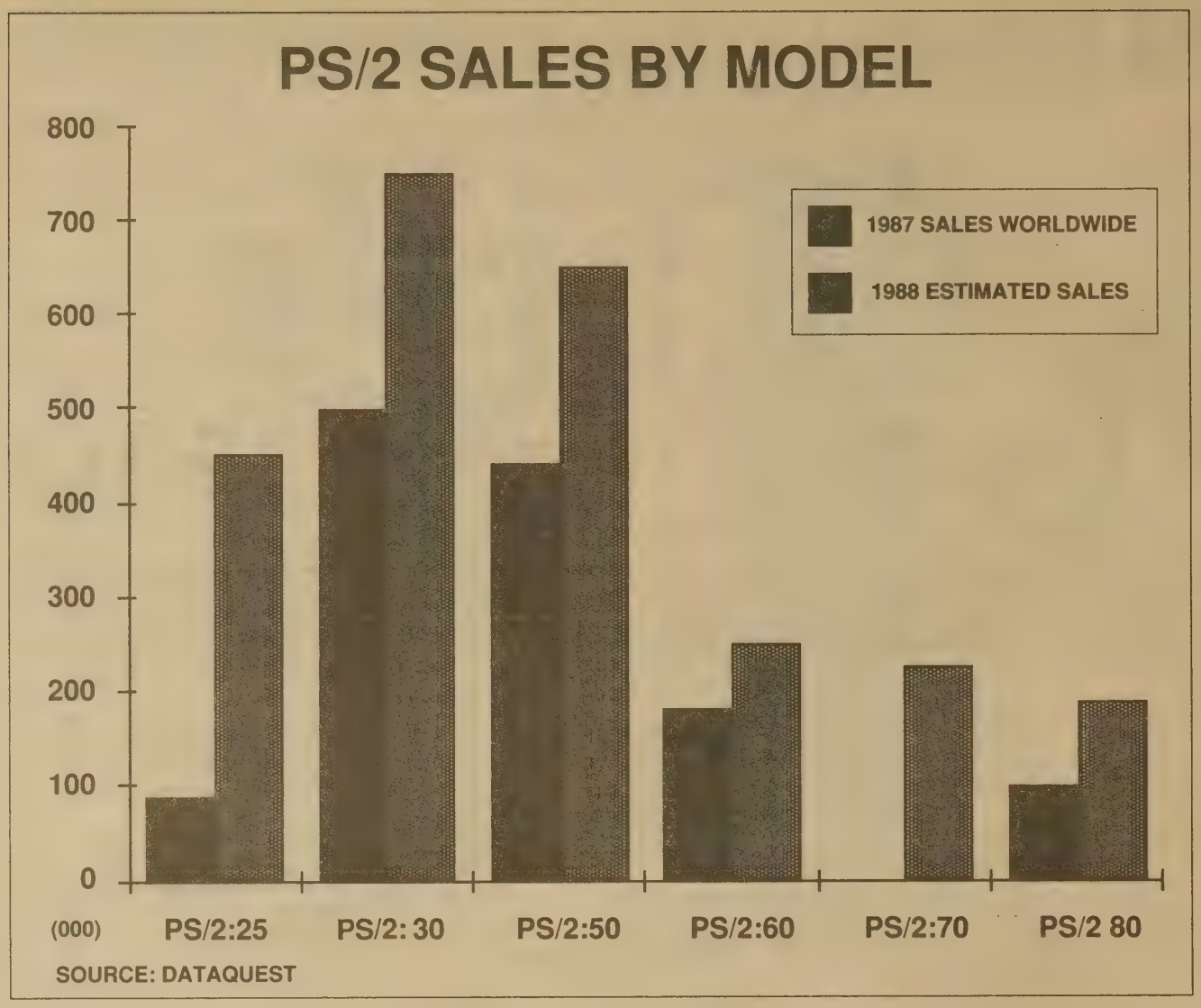
MICE

Logitech Logimouse Bus Version	$109
Logitech Logimouse C7	$89
Logitech Logimouse C7 w/publisher	$124
Microsoft Mouse (Bus Version)	$119
Microsoft Mouse (Serial) w/Windows	$149
Mouse Systems (Serial Version)	$108
Mouse Systems (Bus Version)	$116

2740 El Camino Real
Santa Clara, CA 95051
(408) 296-0455

FAX
(408) 296-7489

[illegible] (and Market)
San Francisco, Ca 94108
(415) 362-6870



Whereas at the beginning, at the outset, we structured the company to say that the set of problems we are solving is different. We're solving systems-level problems. And the last thing we will do is the integration. We actually start working the process backwards. At the end we finally define a partitioning for that integration and do the integration itself.

We also have over the past three years built a lot of expertise and understanding what compatibility is, working with the Microsofts to understand this area, and since we are addressing more than just one function, we understand how to integrate these things, functionally coupled together. I think it's difficult to build that kind of team very quickly, and we've been able over the past three years to build a team and build the experience level.

It certainly became clear when IBM had their briefing three weeks ago that IBM has fundamentally changed the rules on PS/2. When we started looking at the whole PS/2 process, it became clear that those rules were changing. A big emphasis on performance, mainframe level of performance.

The mainframe strategy of compatibility. And that basically said we're going to to start burying compatibility in hardware, in silicon. Proprietary software — in this case OS/2 Extended Edition, and an undocumented systems architecture, which they succeeded in doing. The other thing — they're taking a mainframe approach to product family, which means in mainframes, they have various models, it's not a single solution for what is now a very large market. The implication of that, the significance, is that compatibility is in fact a lot tougher. And the investment is a lot more significant now . By the time we're through with the PS/2 program, we will have invested close to 10 million dollars.

Because what you have to do is address about 20 years of IBM technology?

A lot of that technology, plus we're breaking new ground in terms of where we go to put the value added, the innovation.

And IBM has never gone out of its way to tell people what it was doing technology-wise...

That's right. And there's certainly a stronger emphasis on performance. A closer coupling of hardware and software. And a lot more products a lot more often. And that's exactly what IBM did three weeks ago. Saying our strategy is for the product family, that it will in fact be product family, so that the niches that they leave between products that they introduce will be narrower and narrower and narrower, in terms of customers trying to shoot between it. And that's where we are today.

In January we indicated that we would start sampling our Model 50 chipset this month, which we are doing, and for Model 80 we would be sampling in the April-May time frame, and we're on schedule for that.

As far as the level of interest in PS/2 — after the product introduction we spent two weeks on the road, worldwide — we held seminars in Paris, London, Boston, Toronto, San Jose, Taipei, Tokyo, Seoul — more than 1500 people at seminars in two weeks. We visited more than 50 customers in the same two-week period, presenting the PS/2 chipset solutions. The level of interest is very high, the level of activity is high. The kind of things others are doing are to develop PS/2 solutions, not as a replacement for ATs, but being able to offer their customers a PS/2 alternative if they choose to have that, as opposed to saying "this PS/2 will replace my AT product line." None of them are taking that kind of position.

There was an opportunity that IBM created when they stopped their AT in favor of PS/2. And the AT market today is a very, very strong market, and will continue to be very strong. Products that will be introduced will be complementing, but with higher performance, certainly higher functionality, and higher pricing, 25% price differentials.

From the standpoint of a user, what would be the practical advantages of buying a machine based on your technology versus buying a nice vanilla PS/2?

We need to provide improved performance, improved functionality, and the price competitive with IBM. When you're competing with IBM, you need to be better than them.

Just as the AT compatibles offer quite a bit of value over what IBM has, the same groundrules apply to PS/2. And they will be successful, and they will apply.

One of the things that we did was to summarize in the areas of performance. We will be able to offer up to 2x the performance of an IBM Model 50 — keep in mind the Model 50 is a 10 MHz, one wait state machine. It'll come from several areas — one is the improved Micro Channel throughput, the other one is this functional coupling that I talked about. Being able to improve processor access into display memory for VGA. These are the kinds of numbers we look at, and know that we can achieve.

In terms of integration, the number of components, on the Model 80 IBM's implementation is about 179 chips. We will be able to reduce that to 66 components, plus memory.

What's the practical impact of that?

You would probably be able to easily get Model 80 functionality into a Model 50 chassis, or better yet into a Model 30 chassis. Full 32 bit performance, 20 MHz operation, and a very small-footprint desktop machine.

On the 286 Model 50 compatible, the Model 50 is about 119 components. We take that down to 68 components. Again, smaller package, lower power supply requirements, higher performance.

And then we've also improved functionality — EMS support, and in VGA we're adding a graphics cursor for improved performance. Memory interleaving, asynchronous control, asynchronous architecture. Those are the kinds of things that, from an end user's standpoint, are the building blocks to allow the compatibles to provide that added value over IBM. We haven't even addressed what is possible on the I/O side. Higher access time disks, higher capacity disks, SCSI for easily expanding I/O capability, etc. So there are quite a few other things that the OEM will do to improve the overall performance of the machine, improve its value to the customers.

Are any OEMs publicly committed to building machines based on these chipsets?

No. Not publicly.

Again, we work with customers well in advance of actual products being shipped.

Well, the question that's on everybody's mind is that there's IBM, sitting there in Boca Raton with its heavy

SANTRON COMPUTER

20 MB TURBO XT

4.77/8 MHz Turbo Motherboard $75
256K RAM 75
XT Style Case 27
150 Watt Power Supply 45
360K Floppy Controller 19
360K Floppy Drive (Japan Made) 69
AT Style Keyboard 45
Hi Res Monographics/ Printer Card 40
Mono Amber Monitor (720 x 348) 69
20 MB Hard Disk. 259
1 Year Warranty parts (except on hard disk) *

Complete System **$750**

* Every hard disk has 90 days warranty

40 MB AT 286 10 MHz

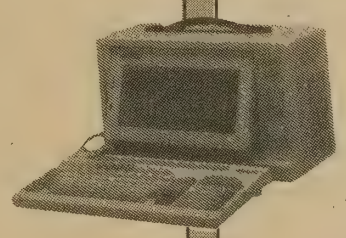
10/6 MHz Motherboard . . $310
512K RAM 120ns 144
AT Style Case 54
200 Watt Power Supply . . .60
Hard/Floppy Controller . . .105
1.2 MB Floppy Drive (Japan Made) 95
AT Style Keyboard 45
Hi Res Monographics/ Printer Card 40
Mono Amber Monitor (720 x 348) 69
40 MB Hard Disk. 379
1 Year Warranty Parts (except hard disk) *

Complete System **$1230**

Every hard disk has 90 days warranty

386 60 MB HD LCD PORTABLE

20 MHz - 0 Wait State
1 MB RAM on Board
32-Bit Slot
1.2 MB floppy disk drive
60 MB CDC Drive (28ns & Auto Park)
I/O Card
HD & FD Controller
640 x 400 Resolution
Contrast Ratio 4:1



FREE Carrying Bag

Only $3500

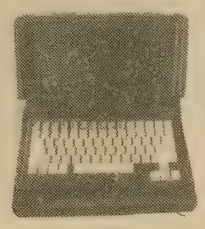
286 60 MB HD LCD PORTABLE

6/10 MHz - 0 Wait State -
286 CPU (DTK)
640K RAM on Board
60 MB CDC Drive (28ns & Auto Park)
I/O Card
HD & FD Controller
640 x 200 Resolution
640 x 400 (Optional)
Contrast Ratio 4:1
Carrying Bag (Optional)

Only $1950

10 MHZ LAPTOP

SPARK SPECIAL



LCD Screen
10 MHz Motherboard
384K RAM
3½" 720K Drive
Serial Port
Parallel Port
RGB Port
Only 9 lbs.

$945

DISK DRIVES

Teac 360KB/1.2 MB $75/95
Fujitsu 360KB/1.2MB 69/89
3½" 720KB 105
3" 1.44 MB 115

MOTHERBOARDS

8/4.77 MHz Turbo Motherboard (OK). . $75
10/4.77 Turbo Motherboard (OK). 90
386 16 MHz Motherboard (1 MB RAM) 1399
AT 6/10 MHz Motherboard. 310

PRINTERS

Panasonic 1091i $225
Fortis DM 2010t 305
Fortis DM 2015t. 390
Star NX 1000 185

MONITORS

Amber Monitor (720 x 348) $69
14" DM-14 Amber Monitor (720 x 348)125
Color Monitor (640 x 260). 249
EGA Monitor 359
(14" Non glare & RGB/Amber/Green Switchable)
Mitsubishi Diamond Scan (800 x 560). 515
Magnavox (920 x 580) 535

HARD DISKS

20 MB (Kit). $259
30 MB (Kit) 289
40 MB (Half Height) 399
40 MB (Full Height) 459

ADD ON BOARDS

Multi I/O Card $55
Monographic and I/O + Card 95
AT I/O Card. 55
AT W.D. Floppy/Hard Controller. 125
EEMS RAM Card 2 MB. 115
Monographics Card w/ Printer Port. . .45
Color Graphics Card w/ Printer Port . .35
EGA Card w/ Printer Port 125
Floppy Controller Card 19

NEW PRODUCTS

Tower Case Available. . . . . .Call

We Upgrade & Repair Computers
Call For Your FREE Estimate
We Wholesale Products

San Francisco
446 Taraval
(Between 14th and 15th Ave.)
San Francisco, CA 94116
(415) 753-3559
FAX (415) 566-3734

Call for product listings!

Hours: Mon-Sat 10-7
Prices subject to change without notice
Sale prices apply to stock on hand.

New Branch-East Bay
2233 San Pablo Ave.
Berkeley, CA 94702
(415) 848-7100

INTERNATIONAL MICRO NET

We
The Network
Featuring Novell

Advanced Netware 286 $1795

Entry Level Netware 286 $495

SFT/286 Version 2.1 $3,595

We have SMC Arcnet & Western Digital EtherCard Plus

PC MAGAZINE Editors Choice

Low Cost Alternative Invisible Network $299
(Includes Cable & Software)

Novell's Ethernet PC Terminal $799
(Includes Ethernet Card)

SEMINARS

Aldus Pagemaker • Lotus • Word Perfect
dBase III • Xerox Ventura Publisher • Intro to Networks

- Beginning and advanced level courses offered. Call for reservations.
- On site training available.

We Specialize In:

- Custom Programming - PC's, Mini's, & Mainframes
- Database Design
- Multi-user Systems
- Inventory/Accounts Receivable Systems
- Gateways to Mainframes
- Documentation & Training
- Call for Brochures & Free Consultation

International Micronet Systems

916 Clement Street (between 10th & 11th)
San Francisco, CA 94118

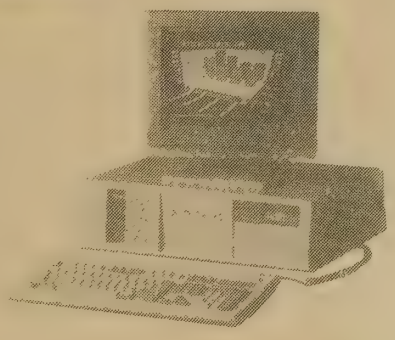
(415) 752-8843

Are Specialists and AST

INTERNATIONAL MICRO NET

Fastest 386 In The Market

EVEREX 386 SYSTEM

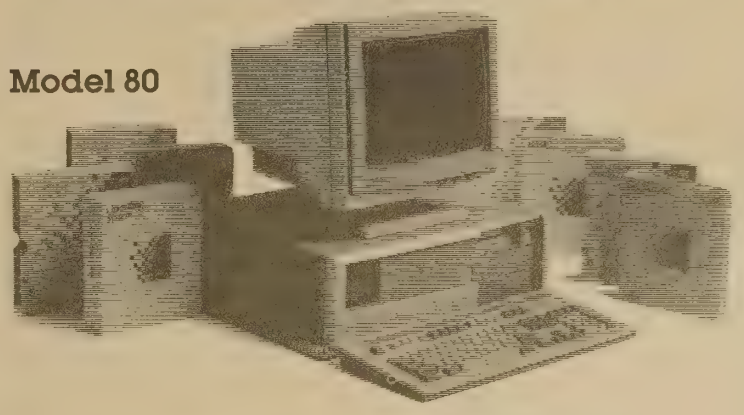


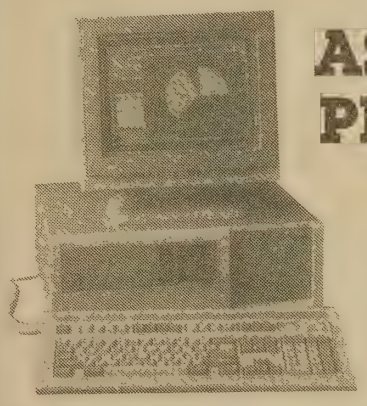
- 20 MHz Intel 80386 Microprocessor
- Zero Wait State Operation
- Advanced Memory Management Architecture with large "write back" RAM Cache
- High Performance 1:1 Interleave Hard Disk Controller
- Real-Time Alpha-Numeric Status Display
- Front Access to 5 Mass Storage Devices

EVEREX
COMPUTER SYSTEMS DIVISION

AST PREMIUM 286

Model 80



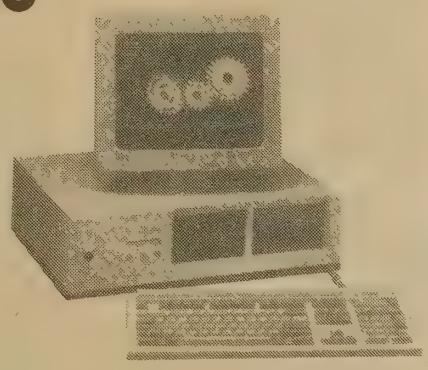


AST PREMIUM 386

Now Available—Call!

WYSEpc 386

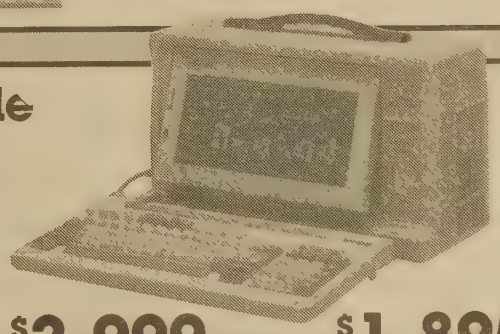
Model 3216



32-bit 80386
1 MB RAM
1.2 MB Internal 5¼"
Serial/Parallel Adapter
80387 or 80287 CPU
Enhanced AT-Style Keyboard

$2,999

LCD Portable Computers



Compaq Portable III Look-A-Like
1.2 MB Floppy
(1) 20 MB Hard Disk
LCD Backlit Screen

LCD 386 **$2,999** LCD 286 **$1,895**

COMPLETE 386 SYSTEM

1 MB, 20 MHz, Hi-Res Monitor, 1.2 MB Floppy, 200W PS, WD AT Controller, Keyboard, VGA/EGA/MGA/CGA Adapter

Only **$2,295**

COMPLETE AT TURBO SYSTEM

256K, 10MHz, 0 Wait State, AT Case, 200W PS, Hi-Res Monitor, 1.2 Floppy Drive, WD AT Controller, Hercules Compatible Card, Keyboard

Only **$999**

COMPLETE XT TURBO SYSTEM

256K, 4.77/10 MHz Clock Speed, Hi-Res Monitor, 150W PS, AT Style Case, Hercules Compatible Card, Multi I/O, Clock/Game/Serial, Keyboard

Only **$555**

Leasing Financing Available

VISA · master charge

International Micronet Systems

916 Clement Street (between 10th & 11th)
San Francisco, CA 94118

(415) 752-8843

Wyse is a registered trademark of Wyse Corporation.
Compaq Portable III is a registered trademark of Compaq Computers. AST Research is a registered trademark of AST Research Inc.
Everex is a registered trademark of Everex Computer Systems Division
Prices subject to change.

artillery trained on you, waiting to blow you out of the water. Obviously you wouldn't be doing what you're doing if you thought that was a real hazard. So what are your views on this whole situation?

It's very straightforward, and with our customers it's also very straightforward. Because IBM's public statements have been that they will license their utility patents. We have been in discussions with IBM from early on, and we encourage our customers to hold discussions with IBM. There's no reason not to. And because what's at stake is a very large market, this notion that a compatible manufacturer would put a product out without talking to IBM just to test the water doesn't make sense. There's just too much at stake for them to do that.

So if you were running a business, then the straightforward thing to do, I think, is to go and talk to IBM. And work out agreements. We're certainly doing that, and we encourage our systems manufacturers to do that.

I don't think IBM is intending in any way to use this as a barrier to preclude competition. The industry has matured to the point where intellectual property rights have to be respected by all parties. There are provisions for doing that, and IBM has indicated that it intends to protect its intellectual property at the same time its public position concerning utility patents is that there will be licensed utility patents on a non-discriminatory basis, on similar terms and conditions.

But as I understand it, licensing utility patents and licensing the Micro Channel, so to speak, are very different things.

Oh, absolutely. When one talks about licensing the Micro Channel — which means "here is what you need to build Micro Channel, and we'll license you that" — there's no reason for a company to do that. The utility patents are fundamental functionals, as opposed to a license for

's statements have been

probably not refer to Micro Channel per se, but incorporate one or two of the functions. There may be any number of functions you need to implement Micro Channel.

But given what they will license, you can reverse engineer the rest?

No. You still need to check that those utility patents that are incorporated in MicroChannel, if there is a patent for them, need to be addressed by licensing. We'll still go through a process of developing the Micro Channel, functionality chipset, etc.

In such a way that it doesn't infringe on anything proprietary?

Those things that are proprietary are utility patents or copyrights. There are copyrights and utility patents. Utility patents you cover by licensing. Copyrights you cover by making sure that if there is any microcode — this is pertaining to silicon — you provide an alternate way to implement that microcode. Number one, from a silicon standpoint, you don't take IBM's silicon and take a photo copy of it, replicate it identically. Some mask work is a protected, copyrighted piece of property. And so in the process of reverse engineering you can't purely copy that mask work.

You have to achieve the same thing in a different way.

That is correct.

So infringing on utility patents you cover by licensing. Copyrights you cover by the reverse engineering process.

You will have OS/2 machines at Microsoft for compatibility testing, and this is something you have an existing agreement with them about. That being so, it seems like Microsoft, which after all has a vested interest in keeping IBM happy, is implicitly endorsing the compatible market as well. Is that so?

You have to start with the fact that ing to market OS/2

patibles are addressing the AT and marketplace, they will address PS/2. Will Microsoft support both customers? I would assume so.

It's really Microsoft's place to position what their public stance is concerning PS/2 hardware compatibles. From an OS/2 standpoint, MS-OS/2 *is* going to run on compatible DOS machines, and I assume that the goal is to make sure it also runs on compatible PS/2 machines.

When is it likely that customers will be able to buy a PS/2 compatible machine?

One of the things that we talked about in January at the press conference is that we estimated sometime midyear. We think that's still is a good date.

Speaking in the middle of March, you still think that by, say, July 1, there will be machines?

There will start to be machines.

At the Model 50 level or the Model 80 level?

Probably both. The impact volume-wise — we look at a mid- to end-of-'89 time frame, however. Because the AT marketplace is still so very strong, and performance-wise it's 12 MHz, 16 MHz 286es, 16-20 MHz 386 machines. And I think you'll see additional products being announced that support higher-performance AT-class machines, particularly with our NEAT AT chipset, some of the functionality to make OS/2 run faster.

So the NEAT chipset can run OS/2 just the way it is.

Oh, right. And with the added improvement in it that is also in IBM's Model 50, which is the fast CPU reset, to go from real mode to protected mode on a 286, which is currently a problem. So we put some of that functionality in hardware on the NEAT chipset so that ATs with the NEAT chipset, which are going to be introduced this year, will do a very good job of supporting OS/2. MS-OS/2 is designed to run on both AT class as well as PS/2 class machines. So the user will still have benefit from AT machines — plus the fact that IBM three weeks ago said that they will continue to do enhancements on DOS. DOS is still going to be a different factor.

We've been hearing a lot that business customers aren't going for OS/2 at all, that they're continuing to specify AT-class machines.

And DOS machines will be around for a while, and DOS machines on 16 MHz 286es are great.

The point I was making is the volume impact of PS/2, we don't see till the end of '89. I think the value of the products that we introduced is that as the customers choose to make the decision to go with PS/2, they will have multiple sources for that — at the same time still being able to gain access to very, very good DOS machines that are 286- or 386-based AT compatibles. That's the real value that the OEMs, our customers, see in being able to offer a complete line of AT compatible as well as PS/2 compatible systems.

So, among other things, customers won't lose their files and investment in existing software.

Nor will the OEMs ask their customers to completely abandon all the training, all of the support, all of the service, all of the whole infrastructure that is built around an AT compatible, to create another one for PS/2. They could migrate over or continue both.

I guess the key from the end user standpoint is that there will be an alternative. There will be choices, and real choices; they don't have to select one over the other. But as they choose to, they can use either or both.

Is there likely to be a significant price difference between machines based on your technology and IBM's?

I guess I would leave that to the OEMs. The OEMs will have to provide value, and that could be significantly higher performance and functionality at parity, pricing-wise, or lower pricing with somewhat improved performance.

We have the enabling technologies that allow them to decide where to position it. With that we're very confident that they can compete.

Are you going to keep improving the PS/2 chips?

Oh yes. That has to be. It's a good

What kind of goals are shooting for?

We have a number of things that we are starting to discuss right now. But it's too early to tell our competitors. (laughs) □

"It's clear that compatibles are addressing the AT and XT marketplace; they will address PS/2. Will Microsoft support both customers? I would assume so."

"This notion that a compatible manufacturer would put a product out without talking to IBM just to test the water doesn't make sense. There's just too much at stake for them to do that."

10 MHz XT

10/ 4.77 MHz Turbo Motherboad
512K RAM Expandable To 640K
360K Drive / Controller
Monographics / Printer Card
Keyboard / Monitor
1yr. Warranty

$489

10 MHz 286

10 / 6 MHz Motherboard
512 RAM Expandable to 1 MB
360K Drive / Controller
Monographics / Printer Card
Keyboard / Monitor
1 yr. Warranty

$799

12 MHz O WAIT AVAILABLE

TATUNG 386

16 MHz / 1MB RAM
1.2 MB Drive / Controller
Serial / Parallel
Keyboard / Monitor
Manual / FCC

$2495

LOCAL TECHNICAL SUPPORT

MONITORS

	MONO	COLOR	EGA
SAMSUNG	$67	$225	$335
CASPER	74	238	339

Quimax 14" Mono $138

C SPECIAL

80287-8	$239
80287-10	289
80387-16	489
41256	$LOW
4164	LOW

Seagate HARD DISK

	20MB	30MB	40MB	80MB
	$209	$232	$389	$879
Kit	258	288		

All Drives Shipped with Factory Seal

For Sale By Owner

* Used Computer Consignment At Our Store
* Come In & See Used Computers For Sale By Private Owners

We Buy and Sell Excess Inventory: RAM, EPROM, CPU and Math Coprocessor

DRIVE

Fujitsu 360K	$67
Fujitsu 1.2MB	88
Teac 360K	78
Teac 1.2MB	98
Toshiba 3.5" 720K	89
Toshiba 3.5" 1.4MB	129
Alloy Type Backup	469

MOTHERBOARD

XT 8 / 4.77 MHz	$66
XT 10 / 4.77 MHz	79
AT 10 / 6 MHz	269
Baby AT for XT Case	269
AT 12 / 10 / 6 MHz	319

ADD ON BOARD

Mono/ Printer Card	$40
Color / Printer Card	40
EGA / Printer Card	129
Everex EGA	128
Genoa VGA 800X600	189
XT Mulit I/O	53
AT I/O	48
RS232 Card	25
XT 2nd Serial Kit	14
AT 2nd Serial Kit	22
Floppy Card	
360K / 720K	25
360K / 720 / 1.2 / 1.4M	47
XT Hard Disk Card	59
AT HarD / Floppy Card	120
XT RAM Ext. Card	34
AT RAM Card 2.5M	84
Printer Card	20
Game Card	18
Clock Card	25

Misc.

HP LASERJET II	1695
Dot Matrix Printer	165
MS-DOS 3.3	88
LOGIMOUSE	77
Keyboard 84 / 101	40/50
Keyboard / Click	56/66
MaxiSwitch KYBD	63/73
Keyboard Draw	35
MODEM 1200	68
MODEM 2400	139
9-25 Pin Convertor	8
RS232 M-F Convertor	7
RS-232 1-4 SW-Box	44
Printer 1-4 SW-Box	49
R232 Cable 12'	14
Printer Cable 12'	14
Printer Ext Cable 6'	10
XT Case	27
XT Case (AT Like)	35
AT Case	55
Disk Ext Box / Power	79
150W Power Supply	45
220W PowerSupply	69
Power Strip Surge	9
Power Pad Surge	22
System Stand	19
Monitor Ext Cable	8
Keyboard Ext Cable	8
Printer Stand 80C	22
Printer Stand 132C	29
Joystick	22

SOFTWARE

Learning DOS	36
Smart DOS	25
Learn to Use PC	25
Learn to use Lotus	55
Lerarn to use dBASE	55
Turbo Pascal	68
Trubo C. Compiler	68
Microsoft Windows	68
Print Shop	50
First Publisher	62
Fast Pak Mail	61
Fast Pak Data	61
News Master	74
Typing Tutor	41
Tournament Bridge	40
Sargon III	18
Flight Simulator	40
Falcon	40
Thexder	26
3-D Helicopter 4	41
Ultima IV	45
Jet	40
F-15 Strike Eagle	30
Others	Call

DATA-ONE INC.

293 CASTRO ST., MT. VIEW, CA 94041
TEL: (415) 962-1771 FAX: (415) 962-1774

Prices subject to change without notice

- UPS Shipping Daily • Dealer Inquires Welcome • Corporate PO's Welcome •

First Of Two Parts

Jim Garrison:

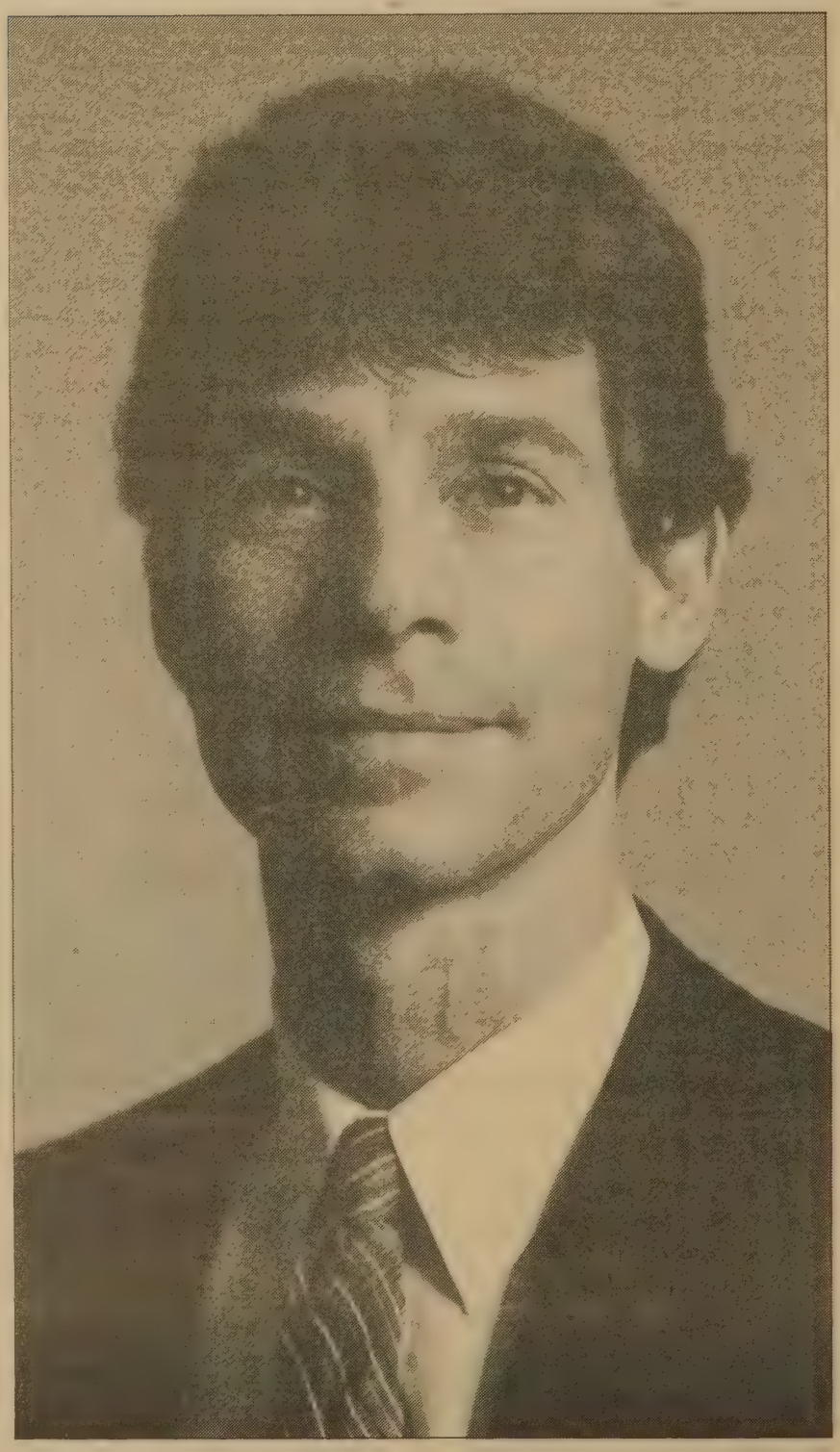
High Tech In The Global Market, And How It's All Connected

By Mary Eisenhart

In the 12th Congressional District, this year's election offers an unusual look at what may well be the politics of the future, particularly as they address the needs of the high tech community. The 12th District, traditionally Republican, encompasses the cradle of Silicon Valley, extending from Woodside to Gilroy and including Palo Alto, Sunnyvale, Mountain View and Cupertino. It's also the home of a primary contest pitting Republican incumbent Ernest Konnyu and veteran Democratic local politician Anna Eshoo against their respective challengers Tom Campbell and Jim Garrison.

Both Campbell's and Garrison's campaigns depend less on party politics than on the notion that Silicon Valley, home and showcase of American high tech industry, faces a host of new issues crying out for new solutions. Campbell, a law professor at Stanford who counts the likes of John Sculley and David Packard among his supporters, and Garrison, executive director of the Esalen International Institute's Soviet-American Exchange Program and the favored candidate of Foster Gamble, Intel founder Paul Hwoschinsy, and venture capitalist Rinaldo Brutoco, offer perspectives and solutions based on specialized professional experience. Each offers unique expertise in issues important to the computer industry.

Because we feel that these two candidates are raising and addressing issues which will profoundly affect the computer industry as a whole and the future of the user community, we are featuring this two-part series of interviews. Next month, Tom Campbell. This month, Jim Garrison.



Jim Garrison seems to have been involved in international relations from birth. Born in China to Baptist missionary parents, he grew up trilingual in Mandarin, Taiwanese and English. In his 37 years, he's written five books on US-Soviet relations and nuclear power, acquired a master's degree from Harvard and a Ph.D. from Cambridge, lived and studied in Asia, the Middle East, Europe, Central America and the Soviet Union. He's currently working with John Naisbitt of *Megatrends* fame to set up US/China and US/USSR cooperative economic programs, and has been a prime mover in what he calls "citizen diplomacy."

Garrison is also a co-founder of the Christic Institute, a non-sectarian public policy center set up in 1980 in response to the Karen Silkwood case; Garrison was active in the lawsuit that resulted in heavy judgments against Silkwood's employer, Kerr-McGee Corporation, and awards of damages to her children. He's also actively involved in the Institute's current lawsuit under which key Contragate figures are being prosecuted in Miami federal court on racketeering charges.

"I've always believed not only that the world is round, but that everything is interconnected," he says. He sees a bright future ahead for the nation's high tech industry as part of a thriving global market, and offers a host of suggestions as to why Jim Garrison is the candidate with the right credentials to promote that future.

What do you see as some of the crucial issues in this election?

I think that one of the things that challenges me about running for Silicon Valley is that, foreign competition being what it is, what this Valley needs in the US Congress is somebody who understands international

QUALITY SERVICE PRICE LEADER FOR '88

QSP INC.

Sales (408) 435-8222 • 780 Montague Expwy • Ste. 207 • San Jose, CA 95131

QSP SUPER MICRO SYSTEMS

SYSTEM	MEMORY	BIOS	PRICE
386-20MHz - 0 Wait, Full*	1MB (256K, 80ns)	Phoenix/Award	$2405
386-16MHz - 0 Wait, Full*	1MB (256K, 100ns)	Phoenix/Award	2324
386-20MHz - 0 Wait, Jr.*	1MB (256K, 80ns)	AMI BIOS	2099
386-16MHz - 0 Wait, Jr.*	1MB (256K, 100ns)	AMI BIOS	1799
286-12MHz - 0 Wait, Jr.*	512K (256, 80ns)	AMI BIOS	1029
286-12MHz - 1 Wait*	512K (256K, 120ns)	Phoenix	995
286-10MHz - 0 Wait, Jr.*	512K (256K, 100ns)	AMI BIOS	999
286-10MHz - 1 Wait*	512K (256K, 120ns)	Phoenix	965
286-8MHz - 0 Wait*	512K (256K, 120ns)	Phoenix	895
8088-2 XT - 10MHz*	256K (256/64K, 150ns)	ERSO	425
8088-2 XT - 8MHz*	256K (256/64K, 150ns)	ERSO	399
Bare Bone XT 8MHz*	256K (256K/64K, 150ns)	ERSO	239

** Call for configuration information.*

VALUE ADDED:
- 30 Days money-back guarantee!
- 1 year warranty on parts & labor.
- Full technical support provided!
- Full documentation and set-up software!
- **Excellent references from government and Fortune 500 companies!**

EVALUATION:
Ask about our free trial policy. Evaluate the system in your office for 7-10 days without obligation!

MOTHERBOARDS

386-20 Full, 0 Wait w/ 1MB	1740
386-20 Junior, 0 Wait w/ 1MB	1560
386-16 Full, 0 Wait w/ 1MB	1560
386-16 Junior, 0 Wait w/ 1MB	1320
286-12 Junior, 0 Wait, 0K	378
286-12 Full, 1 Wait, 0K	409
286-10 Junior, 0 Wait, 0K	330
286-10 Atega 1000, 0K	384
286-8 Atega 800, 0K	372
XT Turbo 8 or 10MHz, 0K	78

DRIVES

360K Mitsumi Floppy Drive	$70
360K Fujitsu Floppy Drive	75
360K/1.2MB Teac Floppy Drive	89/115
20MB ST-225 w/o cont.	229
20MB ST-225 w/cont.	279
30MB ST-238 w/ RLL cont.	345
30MB ST-4038 full ht. 39ms	529
40MB ST-251 half ht. 65ms	449
40MB ST-251-1 28ms	499
40MB ST-4051 full ht . 39ms	469
44MB ST-4053 full ht. 28ms	620
44.6MB Miniscribe 28ms	635
72MB Miniscribe 28ms	Call
80MB ST-4096 full ht. 28ms	795

MODEMS

Comstar 2400 internal	$155
Suntek 1200 internal	79

INPUT/OUTPUT CARDS

Mini I/O XT - 2sp, 1pp, game port, clock/calendar, 2nd sp optional	$55
Mini I/O AT - same as above w/o clock/calendar	55
2nd Serial Port upgrade XT/AT	25
TWINCOM Serial card - 1 sp w/ 2nd option	24
MONOPAK XT - Monographics w/ 1 sp, 1pp, game port, clock/calendar	69
MONOPAK AT - same as above w/o clock/calendar	69

VIDEO CARDS

Monochrome Graphics Card	$41
Color Graphics Card	41
EGA Card - Autoswitch, 640 x 480 resolution	155

CONTROLLER CARDS

Suntek 2 Dr. Floppy Cont.	$22
Hard Disk Controller Card	85
WD WA2 Hard/Floppy for AT	145
RLL Hard Disk Controller	95
Special Floppy Cont. for 1.2 MB Drive on XT	75

MEMORY EXPANSION CARDS

RAM Card 576K w/ 0K	$29
MEMOPLUS XT - 2MB EMS w/ 0K	85
MEMOPLUS AT - 2MB EMS w/ 0K	99
DO-ALL XT - 1.5MB EMS + I/O w/ 0K	149
DO-ALL AT - 3MB EMS + I/O w/ 0K	190

MONITORS

Goldstar Amber Mono	$65
Tatung Amber Mono	98
Tatung Green Mono	96
Quadrant 14" Paper White	135
Goldstar RGB Color	245
Tatung RGB Color CM-1322	325
Goldstar EGA	345
Tatung EGA CM-1380F	419
Nanao Multisync 8060H	569
Nanao Multisync 8060S	595
Tatung Multisync CM-1495	495

POWER SUPPLIES

200 Watt, ASTEC UL, CSA listed (top line)	$95
180 Watt switching, for XT	49
165 Watt switching, for XT	42

KEYBOARDS

101 Key enhanced mechanical Alps switch	$65
84 Key AT style mechanical Alps switch	52

CHASSIS

AT case - full size, holds 5 1/2ht. drives	$69
Mini AT case for XT - reset button & LEDs	59
XT case - IBM style	29

LOCAL AREA NETWORK

Arclan - LAN controller board	$155
Active Hub - 8 port, 2000 ft. distance	350
Passive Hub - 4 port, 100 ft. distance	55
Novell™ software	Call
Vianet™ software	Call

- The Complete Package Call

HARDWARE: Cards & cables
SOFTWARE: Novell or Vianet
INSTALLATION: Hardware & Software
TRAINING at customer site

CALL FOR A FREE ESTIMATE ON NETWORKING YOUR OFFICES. OUR SPECIALIST WILL VISIT YOUR FACILITY AND PROVIDE DETAILS ON HARDWARE & SOFTWARE REQUIREMENTS AND LAYOUT SPECIFICATIONS!

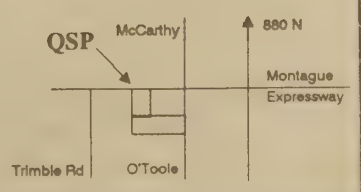
Prices subject to change without notice. Novell and Vianet are trademarks of Novell Inc. and Vianet respectively.

PRICE LEADERS

SPEED CARD	$149
AT/ XT KEYBOARD	25
MONO/ COLOR CARD	39
MONOCHROME MONITOR	65

PRINTERS

CITIZEN ALL MODELS	Call
STAR NX-100	180
EPSON EX-800	425



"The successful competitors in the global economy are going to be the ones who know how to co-operate and inter-connect, not the ones who say 'I want to keep the future from happening.'"

relations, someone who is skilled in the art of international negotiation.

Why this district particularly?

Because 77% of all the big companies in this district are high tech related, either directly or indirectly. And what goes on in Japan, what goes on in Hong Kong and Malaysia and Singapore, all directly affect the day-to-day operations of this valley.

One of the hot issues, certainly, is protectionism. What are your feelings on that?

I am not a protectionist. I would much rather talk about Japan/USA Inc. than protectionist legislation against the Japanese. And I say that for a number of reasons.

The first is that I think it's fundamental to understand that we're undergoing two fundamental shifts. The first from an industrial age to an information age, and secondly from an era of national economies to an era of a single global economy.

I think specifically the Pacific Rim is very much the ocean of the future. It's interesting to observe that the Mediterranean was sort of the sea of antiquity. The Atlantic was the sea of the classical empires and Europe, and I think that the Pacific is going to be the ocean of the future. I think that what's going on in the Pacific Rim is vibrant, it's healthy, it's dynamic, and America should see itself as a Pacific Rim nation.

I was born in China, and I was raised along the Pacific Rim. Actually I grew up trilingual, with Mandarin and Taiwanese and English. So the opportunity to work in Silicon Valley, with my background in the Orient, is a very, very interesting challenge. One of the first things I intend to do is put together a trade mission, and to go over to the Pacific Rim countries and really seriously look at how we can more effectively cooperate with one another. I think that in terms of the United States, Silicon Valley and the high tech industry, under siege as it is by foreign competition, can really lead the way nationally in a debate on what constitutes an industrial trade policy.

Right now the United States does not have an industrial trade policy. We have this vague laissez-faire capitalism where government doesn't pay much attention and it's all reactive panic, like the sanctions against Japan. It's a classic example of a reactive panic situation that didn't successfully either protect the high tech industry or accomplish the objective leads that the semiconductor industry had laid out.

I think an industrial trade policy has a lot of components. I think the chief component of an industrial trade policy is, how do we begin the process of industry-government cooperation? I think Sematech is a classic example of how the industry can start to cooperate within itself, and the government can support industry strategies.

Sematech was basically a consortium set up by the industry to produce the machines that were going to be producing the chips. It was an attempt on the part of many of the main corporations to cooperate at the manufacturing level, against the foriegn competitors. I believe that the government can and should involve itself in such endeavors.

But it opens up very interesting questions. For example, with the industry now cooperating, we need to reexamine antitrust legislation. One of the things that happened about a month ago, when the leaders of the high tech industry met, was they had their antitrust lawyers with them to make sure they weren't violating any federal laws, just to sit down and talk about the problem.

Another whole vast area, which is actually a priority of mine, is the area of export restrictions. According to the National Academy of Sciences, the high tech industry lost nearly $9 billion in sales and 200,000 jobs, simply because of the bureaucratic morass set up by the Commerce Department and the Defense Department, mandating that every time you wanted to make a foreign computer sale or software sale, you've got to get an export license.

It was painful for me to sit in on hearings that (Representatives) Norm Mineta and Don Edwards had last year and hear one CEO after another involved in export saying listen, it takes us six months to three years to get export licenses sometimes.

By which time the technology is obsolete anyway.

Exactly. You're dealing with a valley where the average life expectancy of a lot of of these products is six to nine months. It takes more than that time just to get the export license. Meanwhile the foreign country has gotten it from somewhere else.

Without exception, every one of the CEOs said that even with higher manufacturing costs and higher labor costs here in the United States, that American creativity and innovation was such that they could effectively compete in the world market, if the government would just let them export the products.

I understand, obviously, that we have national security issues, like the Toshiba case illustrates. But I believe that we should be building higher fences around fewer products, and basically allow the industry to be innocent until proven guilty by the Defense Department. In other words, I believe that the defense department needs to *prove* that there is a national security issue here, and if they can't prove it, the industry should be free to sell it.

A Macintosh is not exactly national security.

Exactly. And I think there should be licensing for whole groups of products, not licensing for every transaction. In other words, once they say that a Macintosh SE is okay, then it should be okay. Then you should take it off the list and let people sell it.

Then finally, I think there's the whole issue of intellectual property. It's clear that America leads the world in innovation, creativity, research, and development. And as good as the Japanese are, they're not as good as we are.

I think that we need to look at intellectual property both in terms of extending the right of privacy to electronic mail and using our judiciary to protect, in more explicit terms, American companies who are robbed.

Whoever represents the 12th District is Silicon Valley's face to the world. That person needs to know international relations, they need to know international negotiation, they should be conversant on trade policy, they should be conversant on high tech policy, they should be able to lobby in Congress for a rationalization of our export licensing procedures.

They should be speaking out, for example, on the whole question of quality education. And the fact that the average Japanese student goes to school 240 days a year, the average American student goes to school 156 days a year. A sizable minority of American schools don't have physics classes.

We need to be making sure that every school gets computers. We need to make sure that the students are receiving instruction in science and technology, but not only in science and technology, but also in the whole field of creativity and innovation. How do you make decisions?

Alvin Toffler, author of *Future Shock* and *The Third Wave*, points out that 98% of everything that's ever been invented or discovered in the history of the human race has been invented or discovered in the last 40 years. The kids that are growing up today, your generation, my generation, the baby boomers — we've grown up in a reality that has been characterized primarily not by constancy but by change. Not by tradition, but by flux. Tom Peters put it the best — *the* challenge of the 1990s is thriving on chaos. And we've got to teach kids how to do it.

We've got to teach them skills that are emotional, that are psychological, that are technical, and that are verbal. And that are mathematical. So that we really prepare this next generation for the information society where our primary resource is no longer resources that come out of the ground, but resources in the human mind.

One of the three committees that I want to serve on when I go to Congress is the education committee. I would also like to serve on the science and technology committee and the foreign policy committee.

One of the things that I think really challenges me is that if I'm elected I'll be the first person ever to go into the US Congress, in either the Senate or the House, having spent much of his professional life constructively negotiating with the Soviet Union.

I just spent the last three weeks traveling around the United States with Gorbachev's chief economic advisor, Abel Aganbegyan. He's Gorbachev's senior economic advisor,

"You're dealing with a valley where the average life expectancy of a lot of these products is six to nine months. It takes more than that time just to get the export license. Meanwhile the foreign country has gotten it from somewhere else."

who's called both the economic czar of the Soviet Union and Gorbachev's economic guru.

I have traveled extensively in the Soviet Union. I know that the Soviet Union is a totalitarian system and we need to keep our powder dry. At the same time, I know that Gorbachev is a transformational as opposed to traditional leader. And he's a man with whom we can do business.

I believe the same possibilities exist with the Soviet Union that existed with China. Gorbachev is presenting us with a real window of opportunity and I believe we should seize it. And one of the things I would like to do in the US Congress is to work creatively with the Soviets so that we can start to normalize our relationship with them, so that we can begin in the 1990s to bring our money and our creative resources to bear on making America economically competitive and making an investment in our economic infrastructure.

Compare For Yourself

Introducing The

HIMS 386 COMPUTER

Gibson's "Tech Talk" Column, Infoworld, 12-14-87 Says . . .

(The Mylex Motherboard used in this system.)
. . . leaves the PS/2 Model 80, Compaq's lightning-quick Deskpro 386/16 and Portable 386/20 and even the PC's Limited screamingly-fast 386/16 in the dust . . .

Don't Be Misled by Base System Pricing! Compare Anywhere . . . Start With These . . .

	HIMS (Complete)	NORTHGATE (COMPLETE)	386 OUTFITTERS (BASE SYSTEM)	DELL PC'S LTD. (BASE SYSTEM)
SYSTEM PRICE	$2,900	$3,100.00	$2,995.00	$4,299.00
TOWER CASE	STANDARD	STANDARD	ADD $299.00	NOT AVAILABLE
0 WAIT RAM CACHING	STANDARD	STANDARD	NOT AVAILABLE	NOT AVAILABLE
12" MONITOR	SEE NEXT LINE	SEE NEXT LINE	STANDARD	ADD $149.95
14" FLAT SCREEN MONITOR	STANDARD	STANDARD	NOT AVAILABLE	NOT AVAILABLE
1.44MB 3.5" FLOPPY	STANDARD	STANDARD	ADD $179.00	ADD $199.95
1:1 DRIVE INTERLEAVING	STANDARD	STANDARD	ADD $199.00	NOT AVAILABLE
RLL HARD DRIVE	STANDARD	STANDARD	NOT AVAILABLE	NOT AVAILABLE
65MB HARD DRIVE	STANDARD	STANDARD	70MB ADD $295.00	70MB ADD $400.00
DRIVE CACHING	STANDARD	STANDARD	NOT OFFERED	NOT OFFERED
DISK OPTIMIZER	STANDARD	VOPT STD	NOT OFFERED	NOT OFFERED
DOS 3.3 & GWBASIC	STANDARD	STANDARD	STANDARD	ADD $119.95
CLICK/TACTILE KEYBOARD	STANDARD	STANDARD	NOT AVAILABLE	NOT AVAILABLE
COMPARE SYSTEM PRICES	$2,900	$3,100.00	$3,967.00	$5,168.85

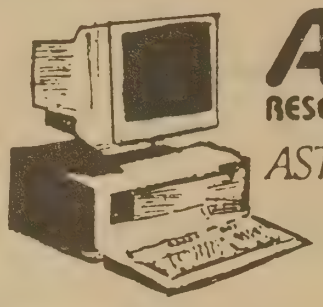
*Reference Infoworld March 7, 1988

CALL FOR DEALER PRICING & MORE INFORMATION

HIMS
3028 Scott Blvd., Unit C
Santa Clara, Ca. 95054

(408) 727-7072
727-7073

14 DAY FISCAL YEAR-END



AST RESEARCH INC.

AST Premium/286™

AST PREMIUM/286 40-MEGABYTE MONO SYSTEM	$2,195.*
AST PREMIUM/286 40-MEGABYTE EGA SYSTEM	$2,475.*
AST PREMIUM/286 40-MB 800X600 EGA SYSTEM	$2,785.*

* INCLUDES 512K RAM, 1.2MB FLOPPY, 40MB HARD DRIVE, VIDEO ADAPTER, MONITOR, KEYBOARD, AND DOS.

AST RESEARCH INC.

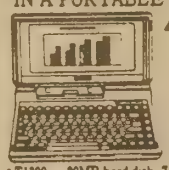
AST Premium/386™

AST PREMIUM/386 MODEL 390 BASE CPU (W/O MONITOR)	$CALL
AST PREMIUM/386 MODEL 340 BASE CPU (W/O MONITOR)	$CALL
AST PREMIUM/386 MODEL 340 40MB MONOCHROME SYSTEM	$4,125.**
AST PREMIUM/386 MODEL 340 40MB EGA SYSTEM	$4,485.**
AST PREMIUM/386 MODEL 340 40MB 800X600 EGA SYSTEM	$4,675.**

* ADD ONLY $85. TO UPGRADE HARD DRIVE TO 28ms
** ALL OUR 386 40MB SYSTEMS COME WITH 20ms HARD DRIVES

TOSHIBA

EVERYTHING YOU WANT IN A PORTABLE COMPUTER.

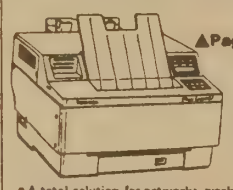


▲T1200

ONLY $2,395

- T1200 — 20MB hard disk, 720KB floppy. 1MB memory. Runs up to 7 hours on batteries, weighs just 10.9 pounds
- Full MS-DOS® software compatibility.
- Standard interfaces for RGB & monochrome monitors, parallel printers, external diskette drives, RS-232C devices, and more

THE HIGH VOLUME, HIGH VALUE LASER PRINTER.



▲PageLaser12

ONLY $2,795

- A total solution for networks, work groups, secretarial printing stations and high volume applications.
- Optional envelope feeder, output jogger/collater, universal paper trays
- Software compatible — multiple emulations are standard, including HP LaserJet 500+.

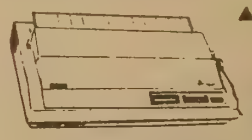
THE LIGHTEST, SMALLEST AT-POWERED PORTABLE

▲T3100/20

ONLY $2,995

- Desktop performance in a 15-pound package.
- Needs just 1.5 square feet of work space; tucks in a desk drawer.
- 20MB hard disk, 720KB floppy, memory to 3.6MB.

HERE'S THE PRINTER YOU DESIGNED!



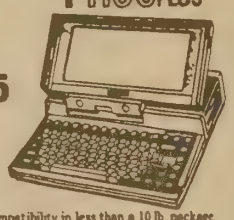
▲P341SL

ONLY $659

- Includes built-in tractor feed, fan-fold bypass for single sheets, auto load, tear bar, single sheet feed guide, 4-parts forms capability — all standard
- High speed drafts at 216 CPS, letter quality at 72 CPS, high resolution graphics, too!
- Wide carriage versatility in an affordable 24-pin printer

T1100PLUS

ONLY $1,395

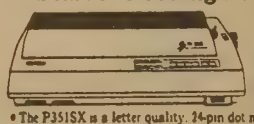


- IBM® PC compatibility in less than a 10 lb. package.
- All the power of a desktop PC.
- Fully portable, runs on batteries and AC.
- Sharp, clear LCD display
- Outstanding price and performance

T3200. . . . . CALL

T5100. . . . . $4975

Start A Feeding Frenzy



▲P351SX

ONLY $969

- The P351SX is a letter quality, 24-pin dot matrix printer.
- 32-digit front panel control that eliminates dip switches
- Prints an amazing 360 cps (draft) and 120 cps (letter quality)
- Advanced paper handling features include an automatic envelope feeder, a built-in tractor and tear bar, fan-fold bypass, and an auto-load lever
- Prints six-part forms with each part as legible as the first

THIS AD SUPERSEDES ALL PREVIOUS ADS, FLYERS, PROMOTIONAL MATERIALS, AND THE LIKE. AD PRICES ARE ALWAYS SUBJECT TO CHANGE WITHOUT NOTICE. PURCHASE ORDER PRICES SLIGHTLY HIGHER. ALL PRICES EFFECTIVE FROM April 15-30 ONLY.

★★★★★★★★★★★★★★★★

WE NEED HELP!!!

- RETAIL SALES PROFESSIONALS (BASE SALARY W/COMMISSIONS)
- ENTRY LEVEL SERVICE TECHNICIANS (ATTRACTIVE SALARIES)
- SALES CLERKS (ATTRACTIVE SALARIES
- CASHIER (ATTRACTIVE SALARY)
- CALL ASAP AND ASK FOR MANNY

★★★★★★★★★★★★★★★★

SCANNERS/FAX MACHINES

BROTHER FAX-100 (ALSO WORKS AS A COPIER/TELEPHONE)	$1,075.
PC IMAGE INTERFACE KIT FOR DATACOPY 730	$425.
MICROTEK MS300A	$1,695.
MICROTEK SHEET FEEDER FOR MS300A	$295.
MICROTEK MS300C IMAGE SCANNER	$1,235.
MICROTEK MSF-300C FLATBED	$1,495.
MICROTEK OCR SOFTWARE	$445.

MODEMS

ALL MODEMS FOR TOSHIBA LAPTOPS	$295.
COMPLUS 1200i 1200-BAUD INTERNAL MODEM W/SOFTWARE	$69.
EVEREX 2400-BAUD INTERNAL MODEM W/SOFTWARE	$195.
EVEREX 2400-BAUD EXTERNAL MODEM	$245.

CHIPS & ACCESSORIES

256Kx9 (80ns) SIMM MODULES	$150.
8087-2/8087-3	$165./$135.
80287-6/80287-8	$185./$265.
80287-10	$329.
80387-16	$565.
80387-20	$795.
8086-2	$5.
COMPUTER ACCESSORIES P-15 POWER DIRECTOR	$89.
UNINTERRUPTIBLE POWER SUPPLIES (ALL BRANDS)	$CALL
LOGITECH SERIAL MOUSE	$75.
LOGITECH HI-RES MOUSE	$129.
MICROSOFT MOUSE (BUSS OR SERIAL)	$135.

SCI/TECH COMPUTER STORES

"DETERMINED TO BE BEST — DESTINED TO BE FIRST"

SUPER DUPER SALE!!

STORE HOURS
MON.-FRI. 9AM-6PM

SUPER DUPER SALE!!!

COMPUTERS

NEC POWERMATE 286/386 DESKTOP W/2MB RAM STANDARD ..... $CALL
NEC POWERMATE 286 PORTABLE W/20MB OR 40MB ..... $2,475./$2,915.
NEC MULTISPEED LAPTOP (SUPER TWIST SCREEN) ..... $1,295.
NEC MULTISPEED EL LAPTOP (BACKLIT SCREEN) ..... $1,525.
NEC MULTISPEED HD LAPTOP W/20-MEGABYTE ..... $2,255.
TOSHIBA T1000 LAPTOP ..... $ 795.
768 MEMORY CARD FOR T1000 LAPTOP . $ 295.
PC SHARE COMPUTER SHARING DEVICE $695.

PRINTERS

DICONIX model 150 laptop printer . . $369.
TOSHIBA P321SL/P341SL (BOTH W/TRACTOR FEEDS) ..... $499./$659.
TOSHIBA P341 ..... $559.
TOSHIBA P3651SX (W/BUILT-IN TRACTOR FEED) ..... $969.
NEC P2200 (NEW MODEL) ..... $355.
IBM QUIETWRITER II ..... $955.

LASER PRINTERS/ PLOTTERS/DIGITIZERS

TOSHIBA PAGE LASER 12 ..... $2,795.
NEC LC-890 POSTSCRIPT ..... $3,395.
AST TURBOLASER/PS (W/POSTSCRIPT) ..... $3,915.*
HP LASER JET SERIES II ..... $1,625.

1—MEGABYTE RAM EXPANSION BOARD FOR HP LASER JET II ..... $265.
2—MEGABYTE RAM EXPANSION BOARD FOR HP LASER JET II ..... $525.
4—MEGABYTE RAM EXPANSION BOARD FOR HP LASER JET II ..... $1,295.

HP 7440A COLOR PLOTTER ..... $1,045.
HP 7475A A/B SIZE, 6-PEN PLOTTER ..... $1,525.
HP 7550A A/B SIZE 8-PEN, CUT-SHEET PLOTTER ..... $3,139.
HP 7570A DRAFTPRO C/D SIZE, 8-PEN, CUT-SHEET PLOTTER ..... $4,115.
HP 7595A DRAFTMASTER A/E SIZE, 8-PEN, CUT-SHEET ..... $8,095.
HP 7596A DRAFT MASTER II A/E SIZE, 8-PEN PLOTTER ..... $9,725.
HOUSTON INSTRUMENTS PC695A A/B SIZE 4-PEN ..... $629.
HOUSTON INSTRUMENTS DMP41/42 C/D SIZE 1-PEN ..... $2,275.
CALCOMP 1023 A/D SIZE, 8-PEN ..... $3,849.
SUMMASKETCH PLUS 12X12 DIGITIZER .... $395.
KURTA IS/ONE 12X12 DIGITIZER W/CORDLESS PEN ..... $475.

MONITORS

GENIUS FULL-PAGE MONITOR W/INTERFACE ..... $1,325.
AMDEK 1280 W/INTERFACE (IDENTICAL TO WYSE WY-700) ..... $695.
GOLDSTAR HIGH-RES EGA MONITOR ..... $359.
QUIMAX DM-12 HI—RES AMBER MONITOR .. $95.
QUIMAX DM-14 HI-RES AMBER MONITOR ... $129.
SAMSUNG HI-RES EGA MONITOR W/TILT/SWIVEL BASE ..... $395.
SAMSUNG TTL AMBER MONOCHROME W/TILT & SWIVEL ..... $89.
NEC JC1402 MULTISYNC II ..... $565.
NEC MULTISYNC PLUS (15"/14"V, 21.8-45KHz/960X720) ..... $875.
NEC MULTISYNC XL (20"/19'V, 21.8-50-KHz) ..... $2,159.
SONY MULTISCAN CPD-1303 (640x400 RESOLUTION) ..... $525.

NANAO 8060S
FLEXSCAN EGA MONITOR
820x620, 1056x480, .28mm DOT PITCH, TTL, RGB, ANALOG, MULTIPLE SCAN FREQUENCY BETWEEN 15.75KHz AND 35KHz; CHOSEN AS BETTER THAN NEC MULTISYNC OR SONY MULTISCAN BY REVIEWER IN FEBRUARY ISSUE OF BYTE MAGAZINE.
ONLY $495.

HARD DISKS/FLOPPIES/ TAPE BACK-UPS

SYSGEN 1.2MB/360K EXTERNAL FLOPPY FOR IBM PS/2 ..... $285.
SYSGEN 42MB EXTERNAL BRIDGE TAPE BACKUP FOR PS/2 ..... $539.
SYSGEN 720K/1.44MB EXTERNAL FLOPPY FOR IBM A/T'S ..... $295.

CDC 130MB ESCI HARD DRIVE W/ESDI CONTROLLER ..... $1,575.
CDC 160MB ESCI HARD DRIVE W/ESDI CONTROLLER ..... $1,675.
SEAGATE ST251 ..... $389.
SEAGATE ST251-1 40MB (28MS) HALF-HEIGHT . $475.
SEAGATE ST4096 (80MB FORMATTED — 28MS0 $725.
MINISCRIBE 6053 28ms 40MB HARD DRIVE FOR AT ..... $689.
MINISCRIBE 6085 28ms 71MB HARD DRIVE FOR AT ..... $835.
MINISCRIBE 6128 28ms 120MB HARD DRIVE FOR AT ..... $1,050.
SCRIBECARD 80SC-XT30 (32.7MB FOR XT) ..... $395.
OKIDATA 1/3 HEIGHT 360K FLOPPY ..... $59.
TOSHIBA 360K EXTERNAL DRIVE FOR TOSHIBA LAPTOPS ..... $375.
POWERSHOUSE 360K EXTERNAL DRIVE FOR TOSHIBA LAPTOPS ..... $265.
3-1/2" 720K EXTERNAL FLOPPY DRIVE ..... $295.
3-1/2" 1.44MB/720K INTERNAL FLOPPY DRIVE . $125.
FUJITSU HALF-HEIGHT 360K FLOPPY FOR PC/XT/AT ..... $75.
TOSHIBA 1.2MB FLOPPY FOR AT OR COMPATIBLES ..... $85.
SYSGEN 60MB INTERNAL TAPE BACK-UP ..... $455.
SYSGEN 60MB EXTERNAL TAPE BACK-UP ..... $695.

EXPANSION/ INTERFACE BOARDS

AST HOTSHOT 286 (UPGRADES YOUR PC/XT TO 10MHz O WAIT) ..... $489.
128K RAM CARD FOR ALL IBM AT MODELS W/512K ..... $99.
RS-232 SERIAL CARD ..... $39.
640K RAM CARD W/O MEMORY ... $49.
PARALLEL/SERIAL/GAME/CLOCK ADAPTER FOR PC/XT/AT ..... $79.
EVEREX RAM 3000 DELUXE EMS ADAPTER W/NO MEMORY ..... $99.

VIDEO/EGA/HI-RES GRAPHIC CONTROLLERS

VIDEO 7 VEGA DE LUXE EGA ADAPTER ..... $195.
EVEREX VGA ADAPTER ..... $295.
HERCULES GRAPHICS PLUS MONOCHROME ADAPTER ..... $195.
MONOGRAPHICS/PRINTER ADAPTER (WORKS TO 12MHz) ..... $49.
PARADISE AUTOSWITCH EGA 480 $195.
EVEREX MICROENHANCER DELUXE II (800x600 RESOLUTION) ..... $165.

SOFTWARE

PAGE PERFECT (BEATS VENTURA OR PAGE MAKER HANDS DOWN) ..... $395.
SANTA CRUZ OPERATIONS XENIX/286 OPERATING SYSTEM ..... $415.
SANTA CRUZ OPERATIONS XENIX/386 OPERATING SYSTEM ..... $485.
LAPLINK (TRANSFER INFORMATION BETWEEN COMPUTERS) ..... $89.
dBASE III PLUS ..... $369.
COMPUTER ASSOCIATES (IUS) ACCOUNTING ..... $325.
SBT ACCOUNTING MODULES ..... $CALL
INDIVIDUAL SOFTWARE TRAINING FOR WORD PERFECT ..... $59.
INDIVIDUAL SOFTWARE DIRECTORY ASSISTANCE (BEATS XTREE) ..... $49.
INDIVIDUAL SOFTWARE PROFESSOR DOS ..... $49.
INDIVIDUAL SOFTWARE SMART GUIDE FOR DOS ..... $29.
THE OFFICE PUBLISHER (LASER FRIENDLY) ..... $595.
MICROSOFT WINDOWS ..... $59.
MICROSOFT WORKS ..... $139.
MICROSOFT MS DOS 3.3 ..... $79.
LOTUS SYMPHONY (3-1/2" VERSION) . $449.
LOTUS METRO (3-1/2" VERSION) ..... $59.
DR. HALO II ..... $15.
FORMTOOL ..... $69.
DISK TECHNICIAN ..... $69.
DRAFIX 1 PLUS ..... $169.
XEROX VENTURA VERSION 1.1 ..... $495.
GEM COLLECTION/GEM GRAPH . $98./$123.
WORD PERFECT 4.2 ..... $195.
WORD PERFECT LIBRARY ..... $59.
WORD PERFECT EXECUTIVE ..... $129.
BORLAND TURBO C ..... $79.
BORLAND TURBO GAMEWORKS ..... $39.
BORLAND EUREKA: THE SOLVER ..... $99.
BORLAND EDITOR TOOLBOX ..... $39.
BORLAND QUATTRO ..... $115.

SCI/TECH COMPUTER STORES
"DETERMINED TO BE BEST — DESTINED TO BE FIRST"

1501 EL CAMINO REAL
BELMONT, CA 94002

(415) 591-1663
EXT. 222

PRIAM

Drives Wanted

8" 806, 807 7050

14" 15450

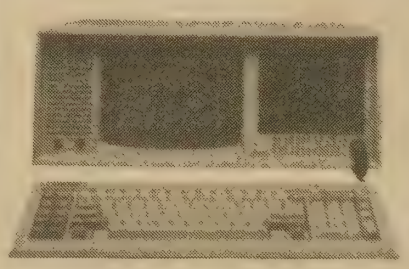
HEADMASTER

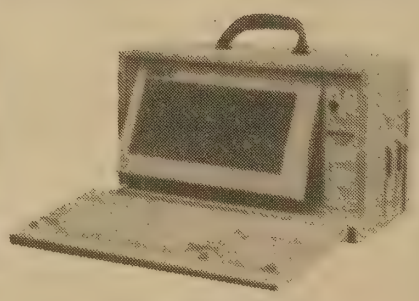
BUY • REPAIR • SELL

Top dollar paid!

408-438-0434

Songtech International, Inc.





CRT-PORTABLE

LCD-PORTABLE

BASIC UNIT SYSTEMS OR KIT:

Desk-top 8088-XT Basic unit	$595
Desk-top 80286-AT Basic unit	$895
CRT portable kit for XT	$360
CRT portable kit for AT	$380
CRT portable XT Basic unit	$799
CRT portable AT Basic unit	$1295
LCD portable kit for AT & XT	$599
LCD portable XT Basic unit	$1070
LCD portable AT Basic unit	$1370

CARDS AND PARTS:

Turbo Motherboard (0K)	$80
AT-80286 Motherboard (0K)	$280
Math Coprocessor 80287-8	$235
Math Coprocessor 80287-10	$275
Math Coprocessor 8087-2	$155
41256, 4164 chips	Call
Monochrome Graphic printer card	$40
Color Graphic printer card	$50
EGA card	$129
576K RAMbank (0K)	$35
Copy II PC option copy card	$69
2MB RAMbank for XT (0K)	$90
2MB RAMbank for AT (0K)	$105
Floppy disk drive (360K)	$68
Floppy disk drive (1.2MB)	$80
3½" floppy disk drive with kit (720K)	$99
20MB drive w/controller	$285
30MB drive w/controller	$315
40MB drive	$385
Keyboard for XT and AT	$50
1200BPS Modem	$75
2400BPS Modem	$169
EPROM Programmer	$80
EPROM Eraser w/timer	$95
IC Tester	$85
PAL programmer	$239

LOGIMOUSE SPECIAL:

Logitech Serial Mouse C7	$69
Bus Mouse	$78
PC Paintbrush	$19
Publisher mouse	$109
Optimouse w/Dr. Halo	$99
Logicadd	$45

PLEASE CALL FOR MANY, MANY MORE PRODUCTS...
VISA, MC AND CHECK ACCEPTED.
DEALERS, DISTRIBUTORS, VOLUME PURCHASES, CORPORATION PURCHASE WELCOME

4588 Peralta Blvd., Suite 15
Fremont, CA 94536 • 415-794-9864 • 415-794-9867

Japan is 1/28th the size of the United States, and yet she every year spends twice as much as the United States in her economic infrastructure. And we wonder why she's beating us. Nothing would give me more pleasure than to be back in Washington and help the high tech industry of the United States be the first American industry to take on the Japanese and beat 'em. And I think we can, not through protectionism, but through the things that I've mentioned, shifting our national priorities in terms of understanding that in the future, national security is not going to be determined by the mere accumulation of weapons that are too lethal to use, but by economic competitiveness in the global economy. The successful competitors in the global economy are going to be the ones who know how to cooperate and interconnect, not the ones who say "I want to keep the future from happening."

I tell you, one of the things Aganbegyan said when he was over here was that they're committed to modernize. And whether it's going to come from the United States or not, they're going to get the computers. And I hope that we don't make the same mistake that Carter did with the grain embargo.

Before 1979, Russia bought almost all its wheat from the United States. After the grain embargo, Russia now buys most of its wheat from other countries rather than the United States. The wheat sits here and rots, and American farmers are in a constant state of crisis. The Soviet Union is ready to burst with real creativity, and the United States should engage in that process.

This has always been a Republican district. Why should it elect you, a Democrat?

I believe that a Democrat makes as much sense to the future of the Valley as Republicans made to the past. In the past, what built the Valley was an entrepreneurial spirit, one in which, without government interference, individuals staked a claim and risked, failed and achieved greatness. Hewlett-Packard, Apple, Intel and most of the companies here were built in this very entrepreneurial spirit. And the classical Republican ideology was an ideology that suited the district. Little government, no taxes, rugged individualism.

Now the situation has completely changed. For the first time the industry has saturated the Valley, foreign competition is a reality, and for the first time the industry which was built without the government now needs government cooperation in order to survive. It is in the strategic interests of Silicon Valley to understand that whoever represents them in Congress needs to be able to deal with two things. Because of the foreign debt and national debt situation, we're going to have to really cut our budgets, and while you're negotiating these budgets, you've got to deal with a Democratically controlled Senate and a Democratically controlled House.

"For the first time the industry has saturated the Valley, foreign competition is a reality, and for the first time the industry which was built without the government now needs government cooperation in order to survive."

What Silicon Valley needs is a pro business, pro high tech, internationally minded representative. Who's well edcated, who knows the world, specifically the Pacific Rim, who knows the art of negotiation, and can speak cogently on behalf of the district in the affairs relating to the Pacific Rim, in the affairs in Washington, in Europe and in the Soviet Union. I believe that because of that, a Democrat such as myself, who's got the international background, can really move forward with the Valley into its next phase.

How would your positions differ from, say, those of Mr. Campbell, who is getting support from David Packard and John Sculley, among others?

He's a Republican, I'm a Democrat. If he goes in, even if he's good, he's going to be a junior member of a minority party. Try to get some government money to Silicon Valley when the Democrats are all trying to take the money to their districts. And they've got the votes.

The biggest difference between Tom and me is that he's a Republican, I'm a Democrat. I can deliver, and he'll find it much more difficult. But I like Tom. I think on the issues, our commitments to articulating industrial trade policy, our commitment to taking seriously the global economy, I think we'd be quite similar, in fact. There's no one I would prefer to debate than Tom Campbell. I think he's a good man, a man of integrity and of great intellectual stature.

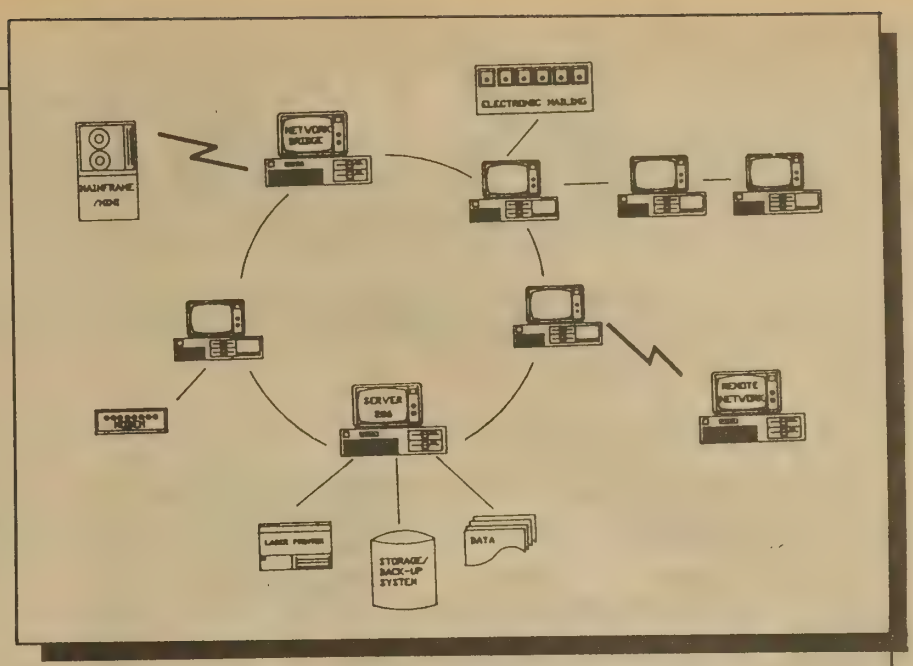
I think in many ways Tom and I are similar. Ernie Konnyu on the Republican side and Anna Eshoo on the Democratic side are the establishment. Party politics as usual. And Tom and I are out there saying no, there's new realities, and therefore we need new visions. □

Share! Integrate! Coordinate!

The drums beat and beat.

As business gets larger, so the resources and information involve more, and so the heads of office managers' become bigger and bigger.

To LAN or not to LAN, that is not the question. The question is how and where to get the best solution.



So talk to us, hand your problems over to us:
Be it PC, Macintosh, Sun, Vax, or IBM;
Be it small and simple, or large and complicated.
To remove the mystery of connectivity for you is our specialty.

And because we know the products and markets so well that you will even find they, the budget controllers, be comfortably entertained.

A We Ease The Connectivity For You

Free consultation on LAN
Various hardware/ software discounts
Installation = (1) $35-45
(2) Site Bidding
Training = $200-300 (3 Hours)

For over 40 stations ask for DAN

B Or If You Want To Do It Yourself:

	SALE
Novell Netware	$1795
Novell Netware	545
SMC Active Hub ~~560~~	480
SMC Passive Hub	75
SMC PC-110 ARCNET Card ~~270~~	250
SMC Twisted Pair ARCNET Card	270
Ethernet Card	340
3 Com Card	410
Cable RG-62/U 1st 25 Ft.	23

C Ethernet Complete LAN

3-node Ethernet, PC's included $3675

- AT Server 12 MHz, 1M, 40 HD, 1.2 FD, KB, Monitor, Ethernet Network Card
- 2 Diskless Ethernet Workstations
- Novell Netware ELS 286 2.0A
- 2-20 Ft. Cable
- 10M SPS Data Transmission Rate

HARD DISK AND TAPE BACK-UP

Maker	Capacity (MB)	Access Time	Price ST/ESDI/SCSI
CDC	121	16.5	X/1570/1790
	155	16.5	X/1690/1840
	300	16.5	X/X/2600
Micropolis	280	18	X/2570/2760
	350	18	X/3220/3480
Priam	130	20	2190/X/X
	230	20	2350/X/X
	330	20	X/3130/X

ALLIES: NOVELL
3COM
EXCELAN
SMC
COMPAQ

Tape Backup

Everex Emerald	60 I/X, 60M, INT/EXT	625/785
	125 I/X, 125M, INT/EXT	1130/1330
	60 I/X 60M, INT/EXT	1260/1490
	120 I/X 120M, INT/EXT	1750/2140
	Vast Device 2.2GB	5600

File Servers

All file servers listed below include **1.5 M** RAM, 2 P/S, HD controller, and mono display

NAC 286—10 MHz, 0 Wait	$1240
AST 286—10 MHz, 0 Wait	1980
Compaq 286—12 MHz	2535
NAC 386—Made by Intel	2980
Compaq 386—70 M Hard Disk	5775
3Com 3Server3	4800

Workstations (Diskless, Mono Display)

Ethernet Workstation—256K	625
Arcnet Workstation—256K	640

MAKING-FRIENDS SALE

CDC Wren IV 300M, 16.5 Ms	$2300
Miniscribe 3650 40M with Disk Manager	$330
Micropolis Fast Hard Disk 72MB, 28 Ms.	$690
Priam V150 Full Height 40MB, 28 Ms	$520

LINK YOUR PC-Macintosh-VAX-Apollo-IBM

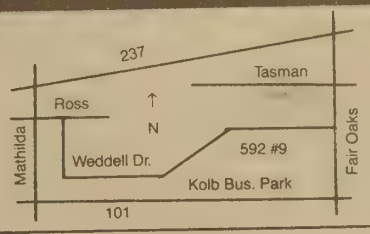
NETWORK ASSOCIATES CORPORATION

592 Weddell Dr. #9
Sunnyvale, CA 94089

(408) 744-0631

Fax: **(408) 744-0639**

Our Job Is To Remove The Mystery of Connectivity For You



PC-Wizardry

As Near As Your Modem

By Lenny Bailes

✓ *Create & destroy RAM disks of any size with out rebooting.*

✓ *Scroll backwards and sideways, load successive files which can toggle between ASCII and Hex, and never TYPE again.*

✓ *Read non-executable files in any subdirectory without DOS 3.3.*

✓ *Display two directories on the screen at once, manipulate file attrib utes, copy and delete.*

✓ *Optimize disk access (watch WordPerfect load in 3 seconds from a 360K floppy).*

✓ *Run two or three programs at the same time and flick between them with a single keystroke*

✓ *Make directories scroll down your screen as fast as a speeding locomotive.*

✓ *Move graphics between paint programs with your bare hands.*

Who, disguised as the mild-mannered possessor of a modem and some free time, can accomplish these things? You can.

All of the capabilities listed in the tease above are available from the following public domain and shareware utilities listed on a BBS system near you. Specifically, and in order:

SETRAM.EXE
LIST.COM
APPENDD.COM
SPCKWIK.COM (PC-KWIK)
MC.COM (Multiple Choice)
DD.EXE (Double Directory)
QWIKMODE.COM
GRCP.COM

These will give your ordinary PC, XT or clone the power to astound Senior Secretaries and amaze young lawyers.

SETRAM

SETRAM is a variable RAMdisk, which is installed by entering a device driver into your Config.Sys. Then, at the command line "Setram XXX" will create a RAMdisk of any specified size. If you want to reclaim the memory later, typing Setram again will remove the RAMdisk without having to reboot. Older versions of Setram have a file directory limit of 32 entries (you can only store 32 files in the root directory), but newer versions come with a fairly simple Debug routine which lets you change the file limit to any number. You can always store as many files as allocated memory permits by copying them to a subdirectory on the RAMdisk.

LIST

LIST is an invaluable file reading utility which is becoming famous. Typing "List [Filename]" at the command line will load your document into a small program which scrolls in big chunks or small ones in all four directions, toggles between ASCII and HEX display, marks any portion of a file for dump to disk or printer, and establishes 7 or 8 bit filters. The filters let you read any word processor's native format without the clutter of control codes on the screen. LIST also has a search function, DOS shell, automatic sequential file load, and completely adjustable screen colors. Most features can be called from more than one logical key, "PgDn" or "D" for down, "Escape" or "Q" for Quit, and so on.

APPENDD

APPENDD is a shareware version of the utility now included with DOS 3.3. If you run an early version of *WordStar*, or another program which must look for overlays in a specific subdirectory, this program will make your life much easier. APPENDD functions like the DOS Path statement, except that it instructs DOS to search each named subdirectory for all files, not just .EXE or .COM files. APPENDD, unlike the Microsoft version, will work with any version of DOS from 3.0 on up.

DD

DD (Double Directory) is a small utility which displays the contents of two drives side by side on the screen. The cursor keys permit you to scroll through either directory and select files for move/copy/delete or change the file attributes between system/hidden/read only/archive.

SPCKWIK

SPCKWIK, (Sometimes bundled as SHAREPCK.ARC) is a disk optimizer like Lightning. The shareware version allocates 360K to application memory and the remainder of available RAM to a cache which stores information based on the frequency of its occurrence during disk reads. Once loaded, you will find that programs come up from floppies almost as quickly as they would from a RAMdisk. Database manipulations are also dramatically improved.

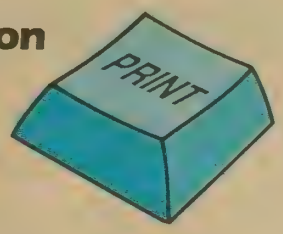
The full version, available from the authors, lets you vary the size of the cache. In the shareware version this can be accomplished by planning your ramdisk and TSR allocations in advance, then loading SPCKWIK in the remaining RAM. Use of public domain TSR-watchers (like *PC Magazine*'s Install/Remove) also permit you to install and deinstall the cache without rebooting.

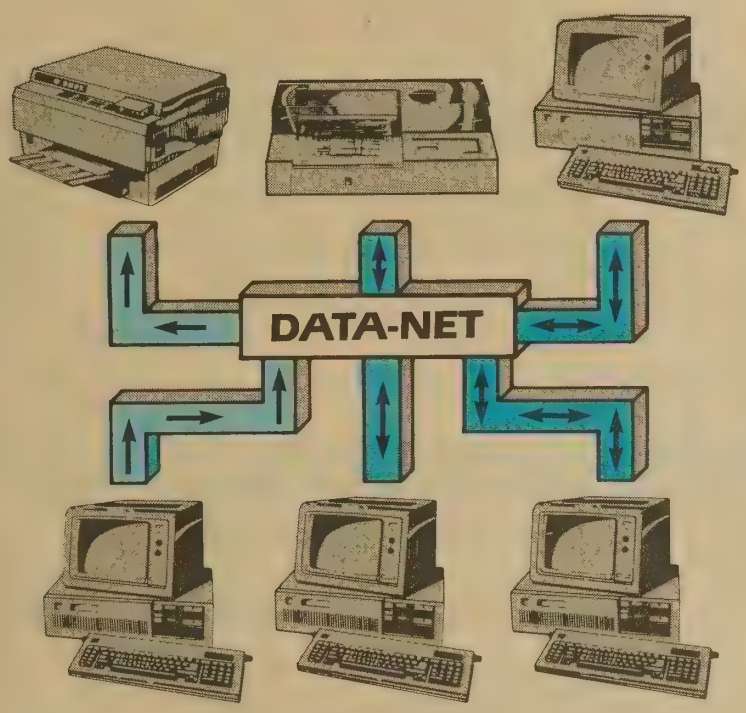
MC

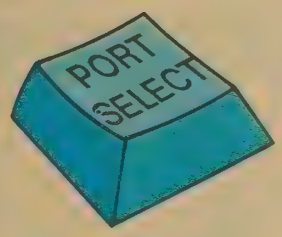
MC (Multiple Choice) from Awesome Technology originally came out at the same time as *Software Carousel*, and was later released for BBS systems by its authors. Multiple Choice creates up to three DOS

Make a few key moves into networking

Simultaneous Operation

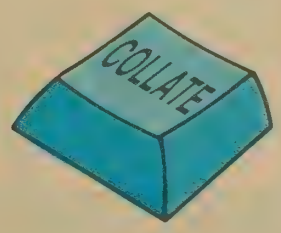




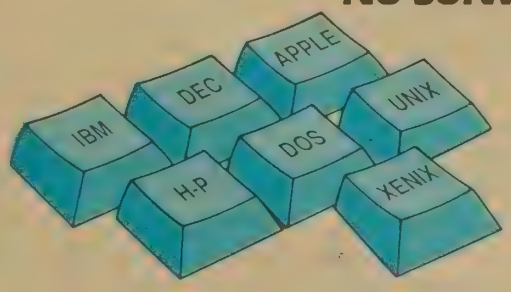


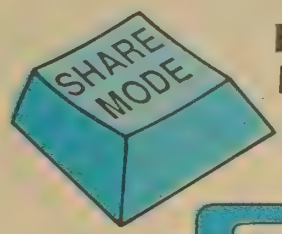
Connect Computer to Computer or Multiple Computers to a Printer

Copy or Collate



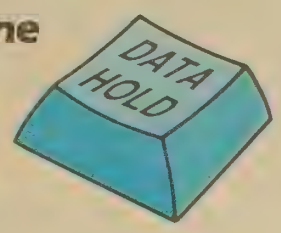
IMC Data Manager Products Are Transparent to the User — No Software to Load!

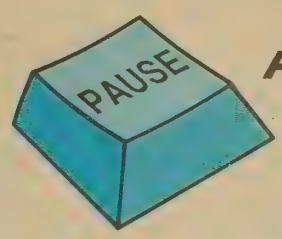




DATA-NET Routes Print Data to the Directed or Next Available Printer

DATA-NET Will Hold the Data You Send to Memory Until You're Ready to Print





Automatic or Manually Controlled Pause Command

DATA-NET gives you all the right connections for PERIPHERAL SHARING

Call for Local Dealer.
OEM & Corporate Inquiries Welcome.

800-537-5999

Integrated Marketing Corporation

See us at COMDEX/Spring '88
May 9–12, 1988
Georgia World Congress Center
Atlanta, GA Booth #115

1031H East Duane Avenue, Sunnyvale, CA 94086
Telephone: (408) 730-1112
Telex: 5106018576 FAX: (408) 730-1452

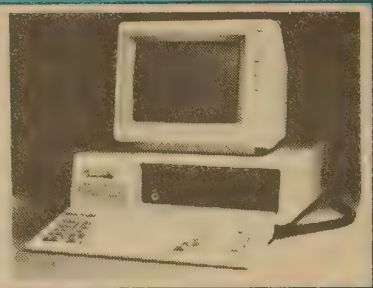
INTERFACE TOOLS

Manufacturing & Marketing of "Interface Tools"

AMERICAN DIGITAL DISCOUNT ASSOCIATION

SUPER iXT SYSTEM

with Floppy Drive
Floppy Drive Controller
Monochrome Monitor
Video Card
20 Mb Hard Disk
V-20 Chips



Model II/8MHz 895.00
Model III/10MHz 945.00

Super iAT/12.5 MHz System

Super iAT/12.5 MHz System

• 0 or 1 wait state • 1.2 MB floppy drive • 40 MB hard disk (39 ms) • Hard disk and floppy drive controller • Monochrome monitor • Video card w/printer port • With 0k memory • 101 enhanced keyboard

$1295

please call for Super iAT 20 MHz

ACER 386 System

ACER 1100

CPU — Intel 386
16 MHz Clock Speed
1.2 Mb Floppy Drive
40 Mb High Performance Hard Disk . . . . . **$CALL**

TOSHIBA LAPTOP-3120

AT Power in a Compact Size
GaS Plasma Screen
8MHz Speed
640K Memory
One 3.5" 720K Floppy Drive
Parallel/Serial Port
20 Mb Hard Drive

T3120 Laptop $ Call
T1000 Laptop $ Call

TAPE BACKUP SYSTEM

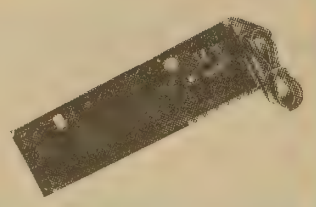
ARCHIVE 60Mb Tape Backup
Self Contained & Menu Driven Image & File by File Backup • PC/XT, AT & Compatibles
Quick Data Format

Internal **$495**
External **$595**

MODEMS

1200 Baud Internal **$89**
Fully Hayes Compatible

ADDA 2400 Baud Internal
w/ProCom Software
Support Com 1 - Com 4
Made in U.S.A. **$139**



U.S. Robotics 2400 Baud
Internal w/BitCom Software
Made in U.S.A. **$169**

EGA MONITOR

TAXAN 770 Multivision
14" Screen, 800x600 . . . . . **$525**

TAXAN 765 Monitor
14" Screen, 650x350 **$415**

TATUNG 1380 Monitor
13" Screen, 650x350 **$395**

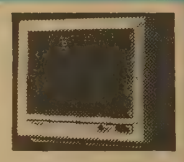
EGA CARD

Genoa EGA CARD **$165**
800 x 600

ATI NEW ENHANCED CARD
Auto-switch Capability, 800x560, 132 Column emulation supports VGA, EGA, MGA, CGA **$195**

RGB MONITOR

CGA Spec.
640x200
Resolution.



TAXAN 720 . . . . . **$275**
TATUNG 1360 **$325**
ADDA RGB **$245**

PRINTERS

240cps in Dot Matrix. 50cps in Near Letter Quality. Epsen 286 Compatible Tractor & Friction Feed.

FORTIS DM2015 - 132 Col. **$395**
FORTIS DM2010 - 80 Col. **$345**
DM1310 130cps, 80 Col. **$225**

EPSON PRINTER 300cps, NLQ Mode
EX-800 80 Col. (OEM) $ Call
EX-1000 132 Col. (OEM) $ Call

HARD DRIVE for PC/XT

20 Mb w/Controller **$295**
30 Mb w/Controller **$345**
60 Mb w/Controller **$795**
100 Mb w/Controller **$1495**

HARD DRIVE for PC/AT

20 Mb ST-125 (28mS) . . . . . **$CALL**
30 Mb ST-138 (28mS) . . . . . **$CALL**
40 Mb By Seagate (39mS) **$425**
40 Mb ST 251-1 (28mS) **$495**
80 Mb By Seagate **$795**
120 Mb By Maxtor, 25mS **$2995**

TTL MONO MONITOR

TTL Monochrome Monitor
Taxan 123 Green **$109**
Taxan 124 Amber **$119**
Tatung Green **$ 99**
Tatung Amber **$109**
ADDA Amber **$ 89**

SPECIAL OF THE MONTH

Thompson Multisync Monitor
Model 4460D
14" screen, 800 x 600
Special Sale:
$425

EMS CARD

0K Expandable to 2.5 Mb
Supports EMS Standard
Works with Lotus Release 2 Etc. w/Software

For AT **$89**
D-RAM 41256 **$ Call**

ADD-ON CARDS

Mono Graphic/Printer Port **$49**
Color Graphics Card **$49**
CGD & MGD Combo Card **$69**
XT Multifunction w/384K Memory **$159**
XT Multi-I/O Card **$69**
XT Mini-I/O Card **$59**
AT Mini-I/O Card **$69**

LASER PRINTER

LASER PRINTER
By HP
Laser II
$1695

PC XT/AT KEYBOARD

KEYBOARDS for IBM PC/XT, AT

Enhanced AT Keyboard **$79**

FLOPPY DISK DRIVES

XT-360K **$79**
AT-1.2 Mb **$99**
AT/XT-3½" **$99**
Apple IIC & IIE **$125**
MacIntosh MAC-800K **$195**

POWER SUPPLY

Uninterruptable Pwr Supply
Power Failure Interrupt Signal to Computer
Back-up Power for 15 Min.
Noise Surpression & Surge Protection

500 Watt **$ Call**

POWER SUPPLY

150 Watt Power Supply
For PC/XT **$49**

200 Watt Power Supply
For PC/Baby AT **$69**

200 Watt Power Supply
For PC/AT **$79**

SYSTEM SOFTWARE

(New)
MS DOS 3.3
w/GW BASIC
$ Call

AT New Case

IBM Model 50

Compatible Case
$CALL

ACCESSORIES

8087 Chip **$ Call**
80287 Chip **$ Call**
Printer Cable **$12.00**
2-Way Data-Switch Box **$29.00**
3-Way Data-Switch Box **$39.00**
Power Directory **$39.00**
Power Directory with Modem Protection **$69.00**

Prompt delivery, usually shipment within 48 hours (except personal check orders). We welcome major educational institutions and government agencies to establish open accounts (P/O) status with us to facilitate shipment of orders. Write or call for details.

Prices quoted above do not include UPS shipment charges.
Prices subject to change without notice.
California residents add 6½% sales tax.
Mastercard or Visa add 3%

Business hours: Mon.-Sat. 8:30am - 5:30pm

IBM PC is a registered trade mark of IBM Corp.
TAXAN is a registered trade mark of TAXAN Corp.
©1987, American Digital Discount Association

AMERICAN DIGITAL DISCOUNT ASSOCIATION, INC.
In Torrance
4040 Spencer St., #M
Torrance, CA 90503
(213) 542-3578

partitions with any desired division of memory. You are permitted to load programs in each partition and switch back and forth between them with a keystroke. Only the program in the active partition will continue to execute. When you switch out, the other programs do not execute in the background, but they resume where you left them upon return. You can toggle between the three partitions with reasonable confidence that one isn't going to lock up on you and crash the entire system (unlike with some software which permits "true" multitasking on an 8088 PC). The program permits loading of graphics applications and automatic pre-configuration of partition defaults.

QWIKMODE

QWIKMODE modifies screen display to treat the flow of text characters as a block, rather than processing them one by one. Your PC normally displays 400 characters a second, according to the documentation, and QWIKMODE increases this to 800 characters a second. The observable result is that a scrolled directory display will go by 15 to 20% faster, and this carries over for a speedier screen refresh in many applications. QWIKMODE can be toggled on or off, which is good, because it doesn't agree with every application you might ever want to run. Turbo Pascal compiled programs don't like to execute with it, but it works fine with most word processors, games and graphics. QWIKSCREEN and QWIKANSI.SYS are two additional utilities which come in the package allowing more speedups on 100% IBM compatibles, and with programs using ANSI screen control instructions.

GRCP

GRCP is invaluable for people who handle graphics in more than one paint or publishing program in a CGA environment. It gives you almost the equivalent of the Macintosh's Clipboard and Scrapbook. When preloaded, GRCP can pop up an adjustable rectangle from within 90% of PC graphics applications (*Newsroom Pro* is the only exception that I've found so far). You can move the rectangle to cover part or all of the screen and capture whatever is on it. The screen image is stored in memory and may be pasted at any time into a GRCP picture library which is stored on whichever disk drive was used to load the program. You can also paste graphics screens into BASICA, *PC Paintbrush*, *Fontasy* and GEM *Paint*, as well as several public domain paint programs. The graphic can then be worked on and saved from within the paint application. GRCP's paste function lets you mirror, invert, rotate and double the size of the image within the pop-up rectangle before pasting. You can also reselect images stored in the GRCP picture library and paste them.

Files from the supported paint programs are loadable into *Ventura Publisher*, *GEM Desktop Publisher* and *Byline*. *First Publisher* and *Windows* Paint allow cuts, but can't save a pasted image directly.

All of these utilities are frequently listed on bulletin board systems in almost every big city in the United States. Some, like LIST, are given as a gift to the user, and the others ask for modest contributions ranging from $7-$25, if you like the program. There is a world of useful software out there waiting to flow over your telephone line!

These public domain and shareware utilities will give your ordinary PC, XT or clone the power to astound Senior Secretaries and amaze young lawyers.

RESOURCES:

GRCP— Graphics Cut and Paste, from Shawn Knight, Info-Tek BBS (416) 454-3046, TV BBS (705) 326-7328, CompuServe [76364,446] $7 contribution requested.

LIST— from Vernon Buerg, Compuserve 70007, 1212

MC (Multiple Choice) from Awesome Technology, Inc., (408) 646-1384, Toll-Free line in Calif. (800) 624-2644, ext. 803. Outside Calif. (800) 548-2255, ext. 803

SETRAM.EXE (Public Domain, listed as RAMA.ARC or SETRAM.ARC on BBS Systems).

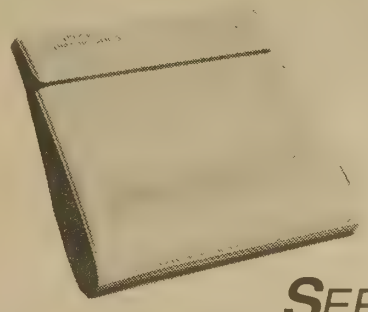
QWIKMODE (found in QWIKANSI.ARC) written by Michael J. Acker, 4206 45th Street, Lubbock, Texas 79413

SPCKWIK (Shareware PC-Kwik Disk Accelerator) Multisoft Corporation, 18220 S.W. Monte Verdi Blvd., Beaverton, OR 97007, $19.95 contribution requested.

DD (DoubleDir) written by Eric Grunin

APPENDD.COM Public Domain

Want to save Time, Money, & Headaches?



GET SUPERSOFT's SERVICE DIAGNOSTICS

All the software, alignment diskettes, parallel/serial wrap-around plugs, ROM POSTs and extensive, professional documentation to provide the most comprehensive testing available for IBM PCs, XTs, ATs and *all compatibles* under DOS or Stand Alone. No other diagnostics offers such in-depth testing on as many different types of equipment by isolating problems to the board and chip level.

NEW: SuperSoft's **ROM POST** performs the most advanced **Power-on-Self-Test** available for system boards that are compatible with the IBM ROM BIOS. It works even in circumstances when the Service Diagnostics diskette cannot be loaded.

NEW: 386 diagnostics for hybrids and **PS/2s!**

For over nine years, major manufacturers have been relying on SuperSoft's diagnostics software to help them and their customers repair microcomputers. End users have been relying on SuperSoft's Diagnostics II for the most thorough hardware error isolation available. Now versions of Service Diagnostics are available to save everyone (including every serious repair technician) time, money, and headaches in fixing their computers, even non-IBM equipment.

All CPUs & Numeric Co-processors
System Expansion & Extended Memory
Parallel & Serial Ports
Mono, CGA, Hercules & EGA Adapters
All Keyboards & the 8042 Controller
All Color Graphics & Monochrome Monitors
Floppy, Fixed & Non-standard Disk Drives
Standard & Non-standard Printers
System Board: DMA, Timers, Interrupt, Real-time Clock & CMOS config. RAM

Join the ranks of XEROX, NCR, CDC, SONY, PRIME, ... who have bundled SuperSoft's diagnostics with their microcomputers at no risk because of our 30 day money back guarantee.

Service Diagnostics for PC, PC/XT, and compatibles only	$169
Alignment Diskette for PC, PC/XT and compatibles (48 tpi drives)	$ 50
Wrap-around Plug for PC, PC/XT and compatibles (parallel and serial)	$ 30
Service Diagnostics for AT and compatibles only	$169
Alignment Diskette for AT and compatibles (96 tpi drives)	$ 50
Wrap-around Plug for AT (serial)	$ 15
ROM POST for PC, PC/XT, and compatibles only	$245
ROM POST for AT and compatibles only	$245
Service Diagnostics: The KIT (includes all of the above—save $502)	**$495**
Service Diagnostics for all other CPUs (386, V20, V30, Harris, etc.)	$195
Diagnostics II is the solution to the service problems of users of all CP/M-80, CP/M-86 and MS-DOS computers	$125
ROM POST for PS/2 and compatibles only	$245
Alignment Diskette for PS/2 and compatibles (3.5 inch)	$ 50

To order, call 800-678-3600 or 217-359-2112, FAX 217-398-5923, or write Supersoft

your microcomputer repair solution

SuperSoft

FIRST IN SOFTWARE TECHNOLOGY P.O.Box 1628 Champaign, IL 61820 (217) 359-2112 Telex 270365

SUPERSOFT is a registered trademark of SuperSoft, Inc., CDC of Control Data Corp., IBM PC, AT & XT of International Business Machines Corp., MS DOS of MicroSoft Corp., NEC of NEC Information Systems, Inc., PRIME of PRIME INC., Sony of Sony Corp

MAC @ WORK

IN THIS ISSUE

Products And Ideas For The Macintosh Workplace

MindWrite: Flexible Outlining For Organizing Your Ideas 70
By Jim Wolcott
This word processor's outlining capabilities streamline the process of composition.

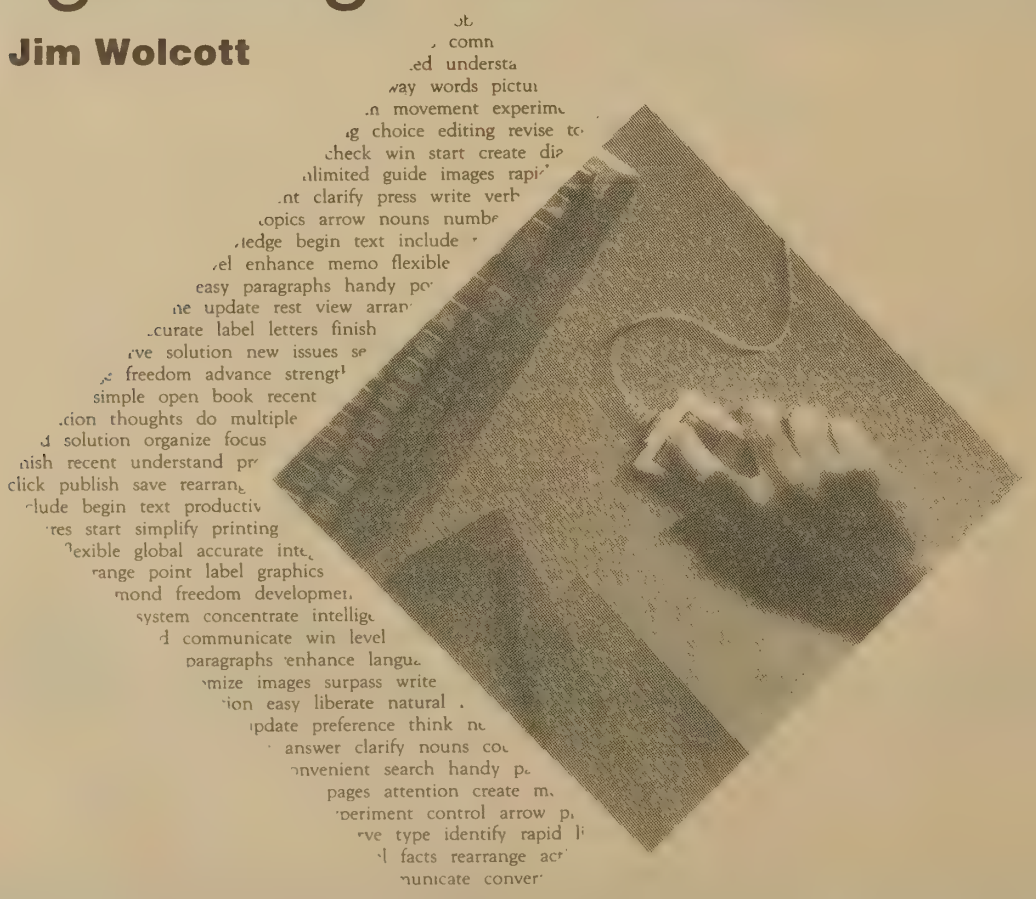
MacWrite 5.0: It's Great, But Is It Enough? 74
By Mary Eisenhart
Long awaited, this update of the former Apple classic offers some very useful new enhancements while retaining the program's attractive simplicity. However, it may be too little too late.

Macintosh Buyers Guide 80

The MindWrite Word Processor

Flexible Outlining For Organizing Your Ideas

By Jim Wolcott



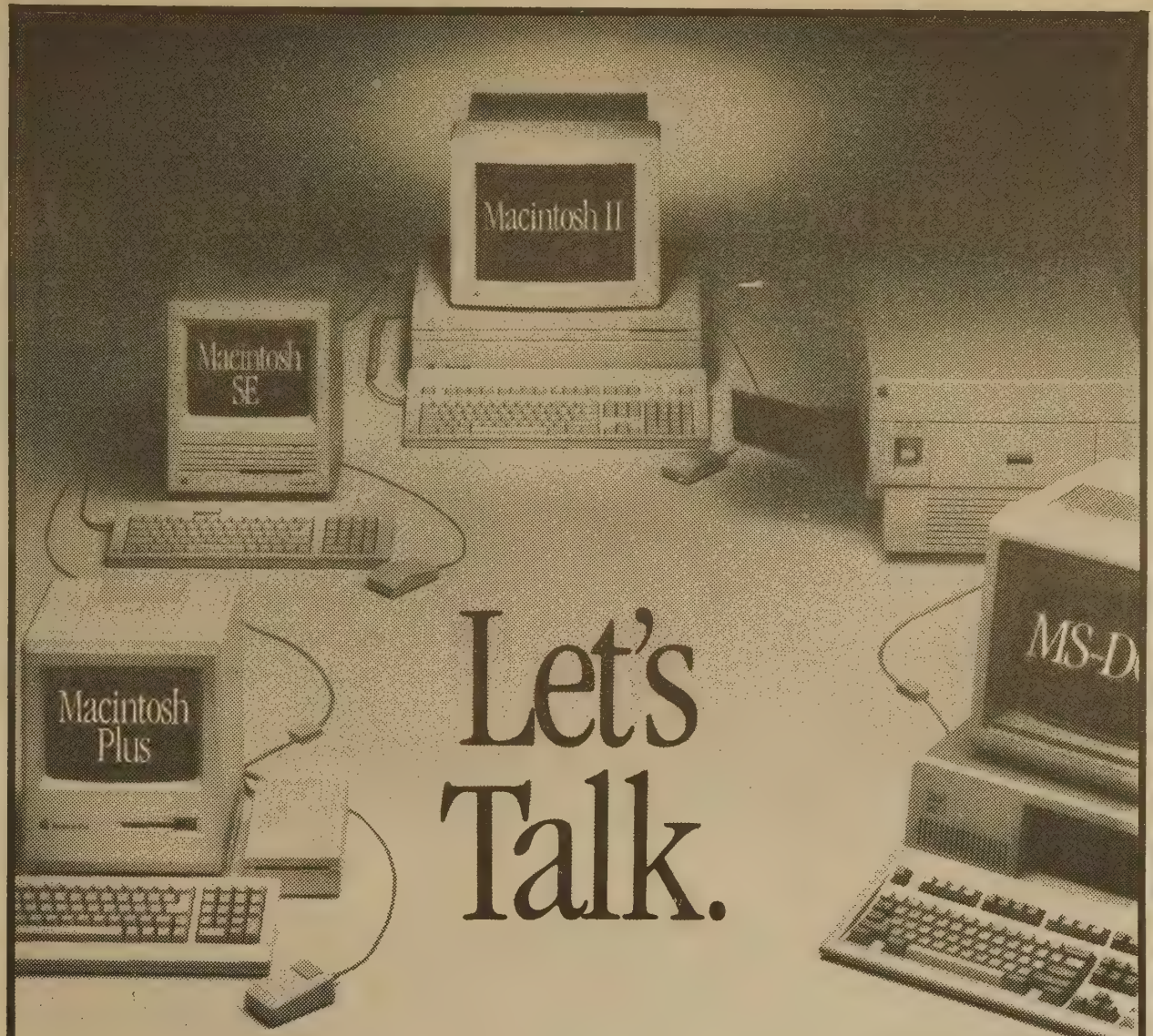
Since *MacWrite* became a stand-alone software product (rather than a freebie included with every beige box), the Macintosh market has seen a flood of word processing software.

For the Mac enthusiast who did little writing, *MacWrite* filled the bill. At the other extreme, the professional writer usually chose the most powerful (and convoluted) word processor on the market: Microsoft *Word*. For the rest of us, it's been a matter of matching features and power for the job at hand.

However, what's been missing from most word processing software is the ability to easily move and manipulate ideas throughout a document. Of course, all word processors offer cut and paste for moving blocks of text. But cutting and pasting your way through a multi-page document practically guarantees losing track of thoughts and concepts.

What's been needed is outlining — a word processor where outlining is a seamless part of the document itself, rather than a tagged-on feature accessed through a different "view," or "window." Enter *MindWrite,* from MindWork software: a word-processor designed around the concept of outlining. On opening a *MindWrite* document, simply type in the headings for the various topics you want to cover. Each heading will be accompanied by a black "diamond" off to the left side.

True to the standard outline format, each diamond can then be "promoted" or "demoted" in hierarchy (moved left or right) with simple keystrokes. Para-



And you'll be surprised at just how extensive your conversation can be. Start with a Macintosh,™ Apple's® most powerful business computer. Then add one or several remarkable Apple Desktop Communications products.

Products like the AppleTalk® network. Combined with software like InBox, you and your Macintosh can send messages, memos, mail, even entire files to all the other Macintosh computers in your office.

And you'll talk just as easily to the people in your office who *don't* use a Macintosh. Because with products like InBox PC and an AppleTalk PC Card, your Macintosh can send information to MS-DOS-based computers, too.

Which means your office will be better connected than ever before.

Stop in and *we'll* talk. About the ways you and your staff would like to communicate. And then we'll show you how Macintosh and Apple Desktop Communications can help you do the job.

Apple Desktop Communications
The Meeting of the Minds™

Mac Plus $1295
Mac SE 2 Floppies $2086

Mac SE 20 MB Hard Disk $2699
Mac II $call

ComputerLand®

There's only one Number One.℠

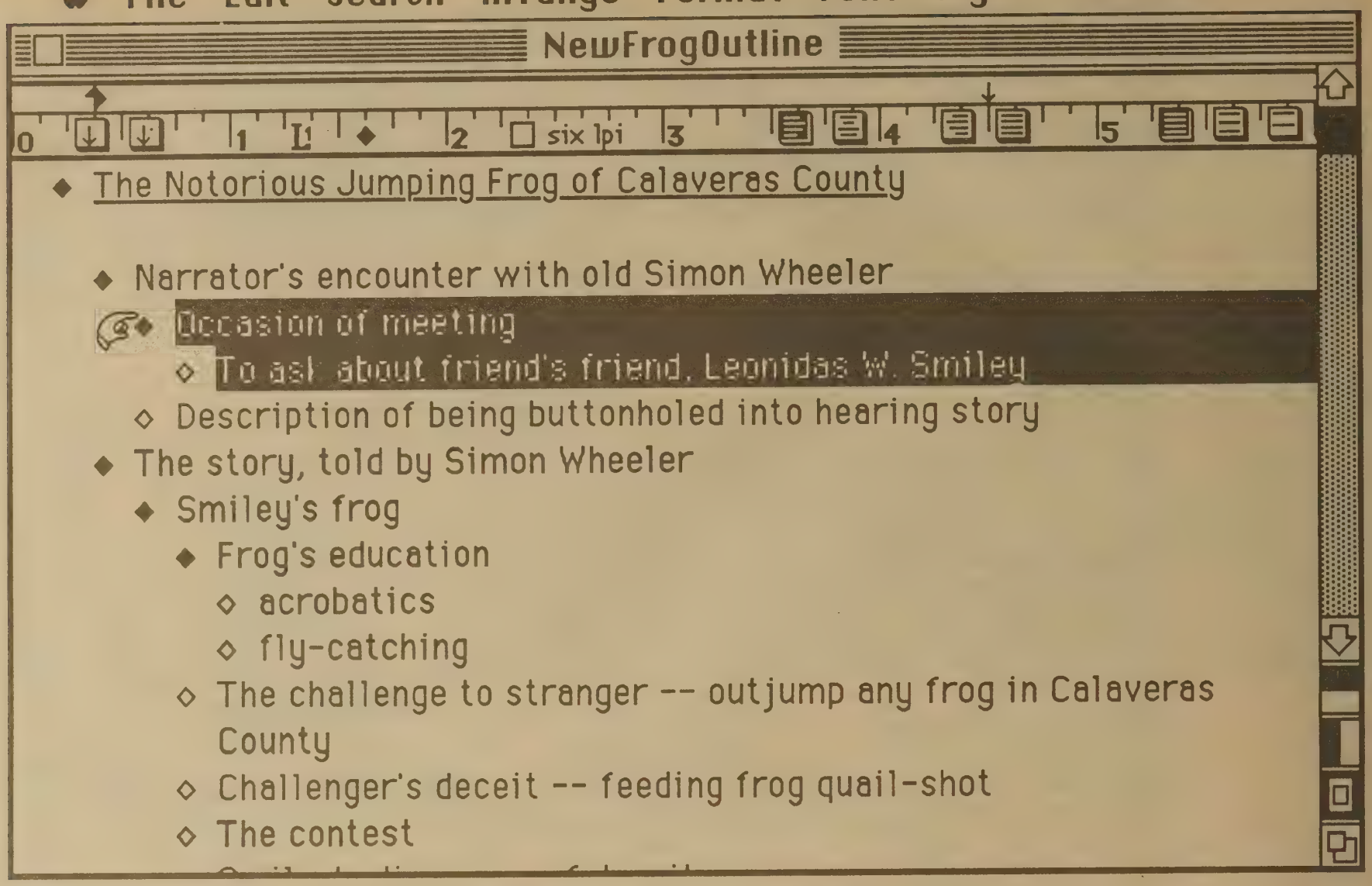
4941 Junipero Serra Blvd., Colma, CA 94014

(415) 994-1400

M-F: 10am-6pm
Sat: 10am-5pm
Prices good thru
May 14, 1988

© 1987 Apple Computer, Inc. Apple, AppleTalk and the Apple logo are registered trademarks of Apple Computer, Inc. InBox and InBox PC are trademarks of Think Technologies, Inc. MS-DOS is a registered trademark of MicroSoft Corporation. The Meeting of the Minds is a trademark of Apple Computer, Inc.

Authorized Dealer


File Edit Search Arrange Format Font Style Windows
NewFrogOutline
six lpi
The Notorious Jumping Frog of Calaveras County
Narrator's encounter with old Simon Wheeler
Occasion of meeting
To ask about friend's friend, Leonidas W. Smiley
Description of being buttonholed into hearing story
The story, told by Simon Wheeler
Smiley's frog
Frog's education
acrobatics
fly-catching
The challenge to stranger -- outjump any frog in Calaveras County
Challenger's deceit -- feeding frog quail-shot
The contest

MindWrite makes it simple to "grab" a section of an outline, and move it to another area of the document. Simply "grab" the diamond with the "hand," and drag.

graphs of text can then be entered under the heading. Another keystroke will hide the text, returning the screen view to the outline headings.

Now the fun begins. Want to move a heading up or down in the outline along with all the text associated with that heading? Simply move the mouse to the heading's diamond, click on the diamond, and drag the heading up or down in the outline. That's it: no cut, copy or paste rearranging of a document is as quick as a click and a drag.

The "click and drag" technique also works for changing the hierarchy of a heading. Just click on a diamond, and drag it left or right. No keystrokes required.

The layout of *MindWrite* is similar to that of *MacWrite,* in that sections of text are formatted under a "ruler." To change the formatting for a particular section, simply insert a new ruler. Ruler options include left align, center align, right align, and justify, with single-space, space-and-a-half, or double spacing on lines. Tabs and decimal tabs are available; however, right-aligned tabs and tab-leaders aren't available.

MindWrite offers the ability to create multiple-window views of the same document. Therefore, you can set one window to show your entire document, and another to just view the outline headings. Jumping back and forth between the windows makes it easy to get an overview of the document, and then jump to the body of text to continue writing. Unfortunately, changes made in one window aren't reflected in others until those windows are "activated" (with a mouse-click). For heavy document-thrashing, you've got to click your way around all the open windows to bring everything up to date.

Unique to *MindWrite* is the way it deals with the Macintosh "Clipboard." When an item is cut or copied from a document, it's stored on the Clipboard — standard Macintosh stuff. However, *MindWrite* stores multiple cuts and copies on the clipboard — *MindWrite* calls this an "Accumulating Clipboard." Any time during a *MindWrite* session, you can scroll back through the Clipboard and access any item that was cut or copied. For heavy text editing, this can be a godsend. With *MindWrite,* items long-ago "cut" from the document can be effortlessly restored.

On the topic of dealing with changes to a document, *MindWrite* can automatically highlight the sections where the text has changed since the last save. For the circumstance where an edited document has to be reviewed by someone else, this feature alone makes *MindWrite* an attractive proposition. Gone are the days of poring over a print-out to highlight sections with a felt pen.

For dealing with other Macintosh applications, *MindWrite* can read files from *MacWrite, ThinkTank,* and files saved as "text only" (ASCII). *MindWrite* can save files as *MacWrite* and text-only, so text and documents can be exported to page-layout programs. Though *MindWrite* can read files from Living Videotext's *ThinkTank,* it's blind to files created with its updated *MORE* outline processor. (A work-around is to create a *MORE* document, and then use "Save as..." to create a *ThinkTank* version from within *MORE.*)

So, with all its abilities, how does *MindWrite* stack up against competing word processors? If you go about writing in "outline form," starting with a flow of ideas, and fleshing out the body of text, *MindWrite* is the hands-down winner. But *MindWrite* has a couple of shortcomings. First, there's no built-in spelling checker — though *MindWrite* supports Deneba System's "Coach" spelling checker. Also, there's no automatic hyphenation for a document in a "text justified" format. No "Glossary" or "Style Sheets" are available for the instant input of frequently used text or paragraph formatting.

For all its ease of use, *MindWrite* is littered with awkward and non-intuitive menu-shortcut keys. No support is offered to redefine these keys for Apple's Extended Keyboard, though a keyboard utility such as CE Software's *QuicKeys* can circumvent this shortcoming.

But *MindWrite* offers one of the most comprehensive "Search" features available on any Macintosh word-processor. *MindWrite* also includes a word-count option that really works, and offers the flexibility to calculate the word count based on a user-defined average word length. An auto-backup feature enables the user to create a new document automatically when changes are made, which makes it easy to revert to the previous version if you want to discard editing changes. Also on the features Hit Parade is automatic table-of-contents (based on the outline), automatic time and date stamping of documents, and sorting capabilities.

All in all, *MindWrite* offers an attractive alternative to traditional "cut-and-paste" word processors. Word processing on the Macintosh is evolving rapidly, and upcoming programs rival the abilities of current page-layout software for the handling of text and graphics. However, none of the rumored offerings have the outlining capabilities of *MindWrite.* In spite of a couple of detail quibbles, *MindWrite* stands alone in its ability to manipulate concepts and ideas in a text document. For business professionals looking for a word-processor based on outlining, *MindWrite* is both the easiest to learn, and the most powerful product available.

MindWrite's suggested retail price is $195. For further information, contact MindWork Software, 555-C Heritage Harbor, Monterey, CA 93940. (408) 375-1531. □

REAL PROBLEMS

• Wasted Time •

• Unproductive Computer Systems •

• A System that doesn't fit your business •

REQUIRE

REAL SOLUTIONS

Computer Systems proven to increase business productivity by up to 50%

(Peat, Marwick, Main, & Co. Write us for your copy.)

Professional Typesetting & Copying of desktop published files without ever leaving your office

• Audio/Video Systems for Presentation, Production, or Play •

• Networks: Local and Wide Area •

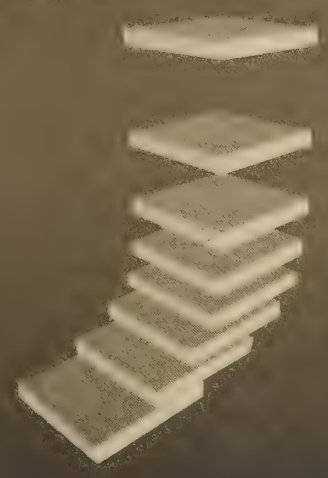
• Systems Customized to your needs, with National Service •

JULIAN SYSTEMS, INC.

- Specializing in Macintosh since 1984 -

415/686-4400

2280 Bates Avenue, Suite J
Concord, CA 94520
FAX: 415/686-4244



Authorized Value Added Reseller

Apple logo Macintosh are registered trademarks of Apple Computer Inc Real Solutions for Real Problems is a trademark of Julian Systems

MacWrite 5.0

It's Great, But Is It Enough?

By Mary Eisenhart

For an intransigent *MacWrite* user like myself, this new version from Claris (see sidebar) is problematical. On the one hand, it offers some new conveniences which make themselves indispensable in about five seconds. On the other hand, 5.0, while certainly the first major enhancement of *MacWrite* in three years, may not be enough of an update to keep the product competitive. After all, it's increasingly hard to be an intransigent *MacWrite* user in a world when most of the "serious" applications seem to want you to use *Word,* John Dvorak and half the Mac universe want you to use *WriteNow,* and your UNIX buddies, just to be difficult, want you to learn *vi.*

Time was when *MacWrite* was the only word processor you could get on the Macintosh. Currently, it and *Word* represent a dual standard, and any self-respecting Mac packages that handle text had best be able to deal with both of them. With Apple's name off the *MacWrite* box, and without a substantial attempt to keep this product competitive, it's at least questionable that *MacWrite* will be able to hold onto any pretensions to being a standard.

Which, from the standpoint of those of us who don't want to switch, would be a real shame.

Why MacWrite?

At $125 and 170K, *MacWrite* is obviously aimed at the low-end market. (Registered owners of 4.5 can upgrade to 5.0 for $25, and should.) It's a nice basic word processor without a lot of daunting features; it probably wouldn't be your choice if you write books regularly, for instance, and have to have features like automatic footnotes and table of contents generation and sophisticated graphics handling. While Ashton-Tate may be worried about whether *FullWrite Professional* will ever ship, it probably doesn't lose a lot of sleep over sales lost to Claris.

Claris/Apple has greatly improved the functionality of menu commands and their keyboard equivalents with a minimum of disorientation.

What *MacWrite* does offer is simple, intuitive text editing and handling. Having gone from a typewriter to *MacWrite* without benefit of documentation, I can attest to the program's successful implementation of the "rest of us" ideology, its graceful synthesis of digital and analog into something you don't *need* a tutorial to learn.

Also, having adhered in most points to the sacred KISS (Keep It Simple, Stupid) principle, and being fairly stable, MacWrite will probably go through its entire life without spawning anything like the thriving genre of love/hate literature *Word*'s been enjoying for the last couple of years.

What's New?

MacWrite 5.0 looks and feels very much like its former self. Its most visible new feature is a spelling checker, which is increasingly *de rigueur* these days whether you want one or not. This one includes a Main Dictionary and a User Dictionary, to which you can add words like "Amiga" which the checker doesn't recognize (though for some reason it doesn't bat an eye at "Valium"); it's simple and easy to operate. Like every spelling checker I've encountered, it's slow and awkward, checking word by word and prompting you with suggestions every time it encounters something it doesn't like. Spelling check-

Claris—New Directions For Apple's Spinoff

Claris, from the Greek meaning "clear and distinct," is the Mountain View offspring of Apple Computer. Formed in April of 1987, Claris has taken over the job of developing and marketing Apple software. The firm was formed to eliminate direct competition between Apple and its third-party software developers.

According to marketing manager Kyle Mashima, there had always been a hint of conflict of interest between Apple and its third-party developers. When the Mac was first introduced, it came bundled with *MacWrite* and *MacPaint.* These two programs were written by Apple — no other software was yet available to take advantage of the unique features of the Mac. To promote the new machine, Apple took its brand of evangelism to other software firms, asking them to write Macintosh programs.

At the same time, Apple continued its internal software development, often becoming a market rival of the very firms it was trying to convert. The situation worsened in late '85 when Apple acquired an ACI (France) database package code-named *Silver Surfer.*

Ashton-Tate, maker of one of the most popular database managers, had begun work on its *dBASE* Mac product. After hearing of Apple's plans with *Silver Surfer,* Ashton-Tate made some very ugly noises about dropping its Macintosh projects. And with visions of winged-dollar signs in flight, Apple reluctantly dropped *Silver Surfer,* now published by Acius as *4th Dimension.*

However, the larger conflict-of-interest issue still remained. Apple eventually decided that forming a separate software corporation would be the best way of resolving the problem. Located in Mountain View, a scant five miles from its parent, Claris is currently a fully owned Apple subsidiary. They expect to become a fully independent company sometime in the near future.

Claris enjoys a few of advantages over most start-ups. Aside from Apple's support and association, Claris also inherited a very profitable product line, including *MacWrite, MacPaint, MacDraw, MacProject* and *AppleWorks* (for the Apple II). At the January Macworld Expo, Claris launched new versions of all these products and also introduced two new programs — *SmartForm Designer* and *SmartForm Manager.*

The SmartForm series is aimed at a fairly undeveloped market — business forms. *SmartForm Designer* is an impressive program, allowing easy design of professional forms like expense reports, invoices or mailing labels. The interface and tool set will be familiar to anyone who's used *MacDraw,* and includes specialized form tools.

Forms created in *SmartForm Designer* can be printed, or used by *SmartForm Manager. SmartForm Manager* allows electronic input of forms data. When used together with *SmartForm Designer,* the programs allow the designer to add "intelligence" to their forms. For example, context-sensitive help, error checking and basic calculations may be added to any field.

So, instead of making employees fill out a printed payroll by hand, a company might let them enter their hours on the Mac. *SmartForm Manager* could automatically total their hours, export them to *Excel* and the data would be instantly available for cost accounting.

Dataquest, a San Jose market research firm, has called the *SmartForm* series "make-or-break" products for Claris. Mashima disputes this point, saying he doesn't believe that the viability of the firm is really in question. The forms market is largely unexplored territory, he says, adding, "The response we've gotten has been tremendously positive," he says. "Our flagship product is really *MacDraw II,* which we think is the best drawing product in the industry."

In the foreseeable future, Claris will only develop software for Apple machines. Although many firms have been converting their Macintosh programs to run on the PC under *Windows,* Claris eschews what it considers "least-common-denominator" programming. "We feel that there needs to be a major force in the Mac world besides Microsoft," Mashima maintains, noting that when you write programs to run in both environments, you sacrifice the ability to use some of the unique features which are built into the Mac. Claris also seems to want to perpetuate the sense of innovation and individuality that's always surrounded the Macintosh.

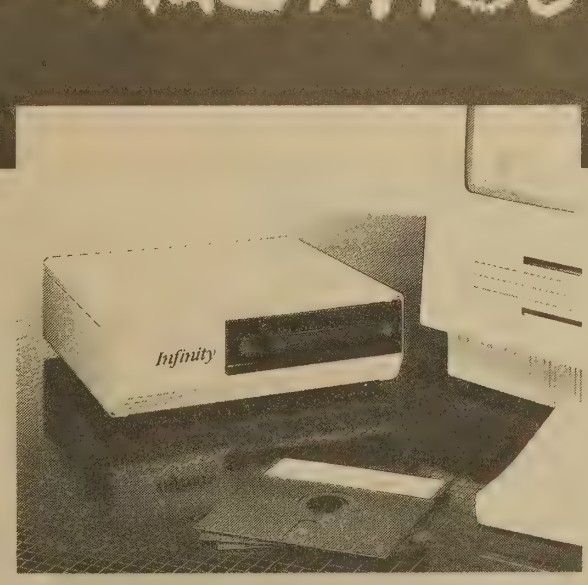
"Mac owners have always had a very close relationship with the box (computer)," says Mashima. The difference between Macs and PCs is like the difference between a dog and a phone — "You don't name a phone..."

— Steve Guttman

WHAT PERFORMS LIKE A HARD DISK ?

NEVER RUNS OUT OF STORAGE

READS IBM FILES ON YOUR MACINTOSH ?!?



Introducing Infinity™ Drive by Peripheral Land *---- the SCSI 10MB removable disk system that will change the way you think about disk drives.*

Now you can end the limitations of standard hard disk capacities and their lack of transportable data. ***Infinity™*** *not only performs like a hard disk drive (65 millisecond access time) but it provides unlimited storage capacity with removable 10MB diskettes.*

Run out of room? Just insert another inexpensive diskette. Your storage capacity is infinite. And the cost is amazingly low: Only $18 for a 10 megabyte diskette. That's $1.80 per megabyte!

Communications bridge between your Macintosh and IBM AT and XT computers.

The ***Infinity™*** *System reads and transports IBM MS-DOS files from 1.2M and 360K AT and XT diskettes; it lets you display, edit and print IBM files on your Macintosh. That's flexibility!*

Each ***Infinity™*** *Drive comes with LaserSpeed™ a LaserWriter spooler by ThinK Technologies, BackPrint™ an ImageWriter spooler by Cortland Computer and PLI's advanced backup utility with image, file, folder, volume and incremental capabilities.*

Infinity™ *is compatible with Apple's complete line of Macintosh computers.*

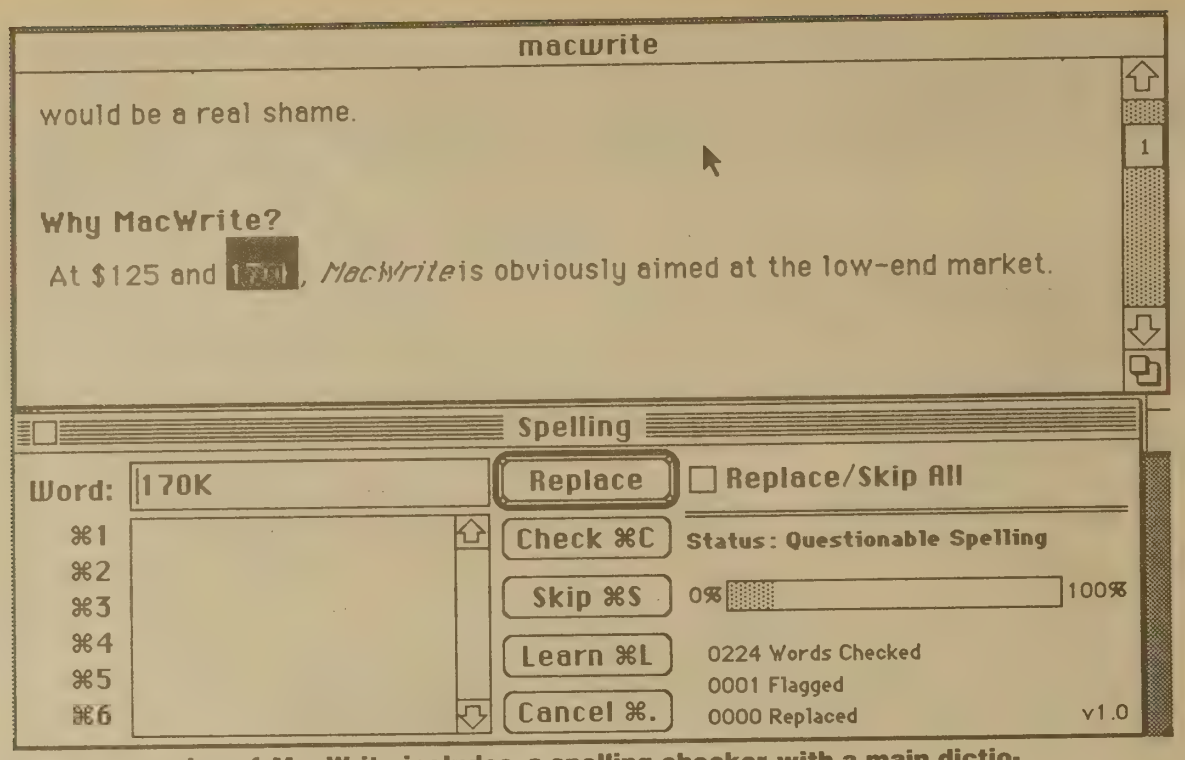
Stop by your nearest Peripheral Land dealer and test drive an ***Infinity™*** *Drive today and see the difference between standard disk drives and* ***Infinity's*** *infinite capacity. Or call us for information and the name of your nearest Peripheral Land dealer.*

Peripheral Land, Inc.

47800 Westinghouse Drive, Fremont, CA 94538

Telephone (415) 657-2211 • Telex 650305-1733MCI • FAX (415) 683-9713

Infinity is a trademark of Peripheral Land Inc. LaserSpeed is a trademark of ThinK Technologies. BackPrint is a trademark of Cortland Computers. Macintosh, ImageWriter and LaserWriter are trademarks of Apple Computer. IBM, AT, and XT are trademarks of International Business Machines. © PLI 1988



The new version of MacWrite includes a spelling checker with a main dictionary and a customizable user dicitonary.

MacWrite continues to be all the word processor many of us will ever need. This new version enhances and refines many of the features which have endeared it to its users over the years while retaining its admirable simplicity.

ers are a matter of individual preference; my own preference would have been for something else instead, like, say, the ability to have multiple document windows open at the same time, which most self-respecting Mac word processors have offered for quite a while. (You can get around this problem to some degree using desk accessories like *MiniWriter* or *MockWrite,* but that's not nearly as useful as having the application support the function you want in the first place.)

However, while I've heard choruses of outrage at the lack of multiple windows in this day and age, and contributed a few squawks of my own, there are cries of jubilation over a couple of tiny, life-enhancing improvements.

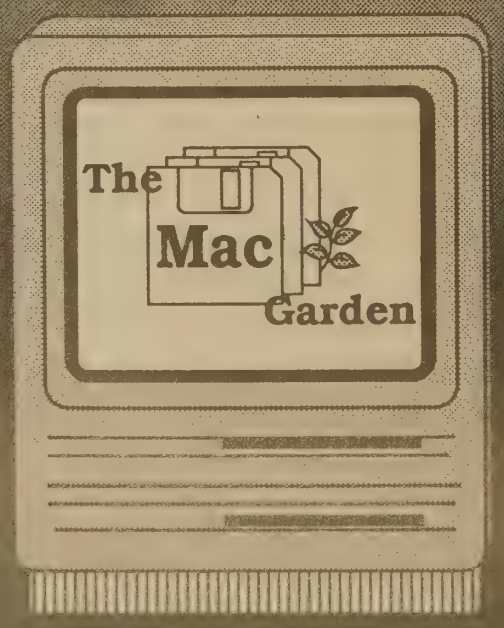
Claris/Apple has greatly improved the functionality of menu commands and their keyboard equivalents with a minimum of disorientation. A few commands are now different and take some getting used to — ^P, for instance, will now send the document to the printer instead of selecting Plain Text, which is now done with ^T. Also, Mac Plus users and other devotees of cursor keys will now find them supported, along with streamlined methods of text highlighting.

The single best new feature is probably the fact that ^S now saves the document, which means, practically speaking, that while you're trying to figure out your next sentence, listening for that elusive word on your interview tape, etc., you can save your document with a keystroke instead of disrupting the flow of your work by pulling down a menu. This godsend originally appeared in *Word,* and it's great to have in *MacWrite.* Another feature available in *Word,* though not particularly intuitively, is a Select All function, for those moments when you've decided your entire 20-page document would look better in bold

THE NORTH BAY'S MACINTOSH SPECIALITY STORE

We Have It!

- ✓ The largest selection of Macintosh software, hardware, and accessories in the North Bay at low discount prices!
- ✓ Try it first policy
- ✓ Friendly expertise and service
- ✓ Easy parking and prompt shipping



HARDWARE SPECIALS:

SuperMac
- Dataframe XP 30. . . . . .$ 830
- Dataframe XP 60 . . . . .$1125
- Trinitron 19" Monitor . $2800

CMS
- External SD 60 . . . . . $ 899
- Internal Pro 30SE . . . . .$ 619
- Internal Pro 102 II $1225

Radius 2-Page Display . . $1799
CTX Enlarger Monitor SE $250

SOFTWARE SPECIALS:

Word Perfect Mac. . . . $189
Microsoft Word $249
Aldus FreeHand $339
FileMaker Plus $179
Double Helix $359
Red Ryder $69
Pixel Paint $289
Simply Accounting . . $279

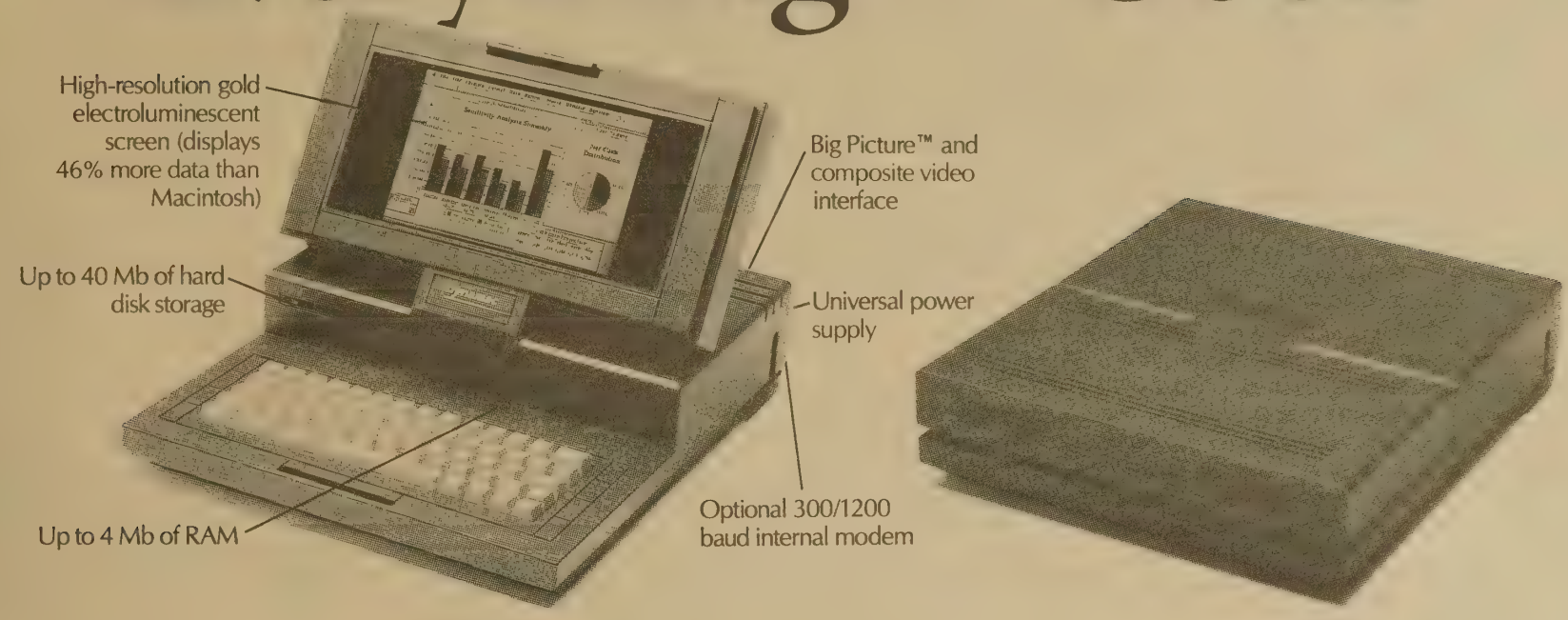
and hundreds more in stock!

Hours: Mon-Sat 10-6

(415) 457-1952

1031 "C" Street, San Rafael CA 94901

Everything. Goes.


High-resolution gold electroluminescent screen (displays 46% more data than Macintosh)
Up to 40 Mb of hard disk storage
Up to 4 Mb of RAM
Big Picture™ and composite video interface
Universal power supply
Optional 300/1200 baud internal modem

The portable Macintosh™ solution.

DYNAMAC
COMPUTER PRODUCTS, INC.

Now available in San Francisco.

Contact Software Literacy Corporation
2255 Ygnacio Road, Suite N-1
Walnut Creek, CA 94598.
(415) 935-0394.

Because the world of information doesn't sit still.

Macintosh is a trademark of Apple Computer, Inc. Big Picture is a trademark of E-Machines, Inc. Dynamac is a registered trademark of Dynamac Computer Products, Inc. Industrial design by /ej/.

Hellman's

Marin's Macintosh Experts

814 'E' Street · San Rafael, California · 415 453-7924
Open 10 AM to 7 PM Mon-Fri 10AM-5PM Saturday

Used Computer Specials!!

Macintosh Plus
$1199

Macintosh 1024E
1 meg memory,800k internal
$999

Includes: 30 day warranty
Keyboard-Mouse-Manual
Macintosh Bible-Mousepad-Box of 10 disks

with this coupon while supplies last!

Jasmine Hard Drives

DD20	$639.00
DD40	$979.00
DD50	$1139.00
DD80	$1379.00

Service/Repairs/Upgrades

Repairs or upgrades completed same day or within 24 Hours unless otherwise specified!!

Upgrades

128-512	$195
512-1 Meg	$225
512-2 Meg	$475
SE-MacPlus/2.5 Meg	$Call
SE-MacII/4 Meg	$Call

Software

Microsoft Specials

MS Write	$99
MS Excel	$229
MS Works	$199
MS Word 3.01	$249
Write Now	$119

italic Zapf Dingbats. Unlike *Word*, *MacWrite* 5.0 Selects All with the nice, intuitive, and Mac-ish ^A.

Yes, But...

If you're a current *MacWrite* user, you've got every reason to upgrade. If you're shopping for your first word processor, this one has (relatively) low price and high ease of use going for it, but may lack some of the features you're looking for.

Multiple windows aside, *MacWrite* still doesn't support two-column text formatting, for instance. Students seem to be going for *WriteNow* in droves because of its footnote-handling capability, which considerably exceeds *MacWrite*'s.

If desktop publishing is one of your main interests, *MacWrite* 5.0 and *PageMaker* will probably take care of your needs admirably. However, *MacWrite* 5.0, though it does allow the insertion of graphics in text and does let you size the artwork, will not let you put a graphic in a block of text, for instance.

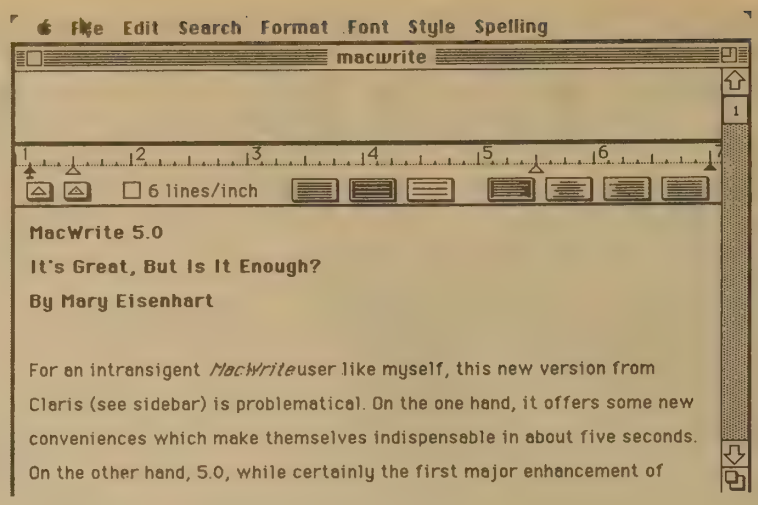
One thing *MacWrite* (apparently in company with every other word processor available for the Mac, though I'd be happy to be corrected) lacks, which would be both useful and probably pretty easy to incorporate: the ability to save a selected piece of text as a separate file. Since both *Smartcom* and *MicroPhone* (telecommunications packages both) support this feature, as well as the equally useful Print Selection, it ought not to be too hard to add to a word processor as an option in the File menu, and would eliminate an awful lot of clunky clipboarding.

System Requirements, Etc.

MacWrite 5.0 runs on all Macs except 128K models. Like most programs these days, it's faster and more responsive on a hard disk; assuming you're one of the lucky people who got their RAM while the getting was good, it works nicely under MultiFinder. We've used it on one-meg Pluses and 512s in various stages of upgradedness, both running System 4.2, and found it reliable and trouble-free.

With a couple of exceptions. It is known to have problems with certain INIT files which some applications put in the system folder; the problem is discussed on various Mac BBSes, and fixes are in the works. So if you find yourself with a sudden increase in system bombs after you install 5.0, check with the authors of the package that uses those INIT files.

In our case, we had a nice little toy that turned the watch icon into a whirling yin-yang symbol. So violent was the conflict between 5.0 and this cosmic INIT that the system would bomb with the slightest provocation (mostly when documents were being sent to the printer), whether the luckless user was using MacWrite at the time or not. Once the INIT file was trashed, the problem disappeared.


File Edit Search Format Font Style Spelling
macwrite
6 lines/inch
MacWrite 5.0
It's Great, But Is It Enough?
By Mary Eisenhart
For an intransigent MacWrite user like myself, this new version from Claris (see sidebar) is problematical. On the one hand, it offers some new conveniences which make themselves indispensable in about five seconds. On the other hand, 5.0, while certainly the first major enhancement of

MacWrite 5.0 retains the familiar MacWrite interface.

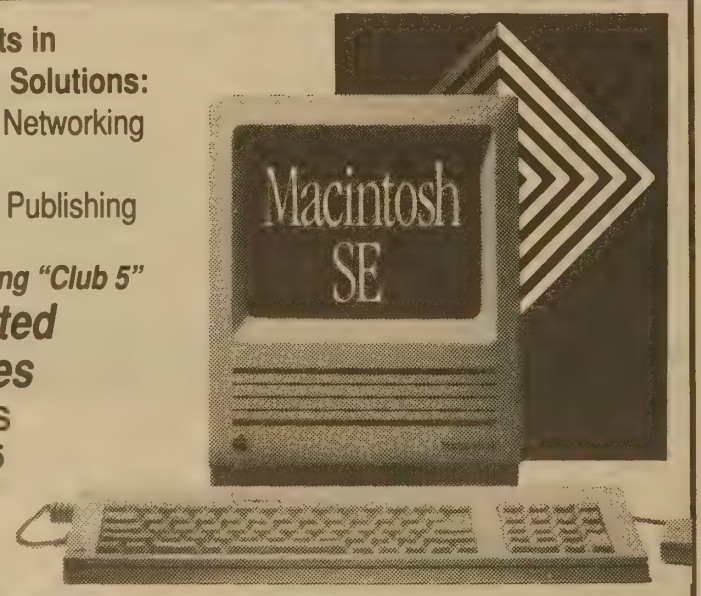
Conclusions

MacWrite continues to be all the word processor many of us will ever need, and this new version enhances and refines many of the features which have endeared it to its users over the years while retaining its admirable simplicity. It is not, however, all things to all users; in an increasingly fragmented market, other packages may be better suited to particular requirements.

Most of us who currently use this package would like to be able to continue to do so far into the future. Therefore we hope Claris will make aggressive efforts to maintain and increase *MacWrite*'s market share by keeping its features current and competitive, without sacrificing the clarity and ease of use that drew us to the package in the first place. (Claris, 440 Clyde Ave., Mountain View, CA 94043. 415/960-1500. Registered users of *MacWrite* 4.5 and 4.6 should call 800/544-8554 for upgrade information.)

Oakland's Full-Service
Corporate Computer Center
Computer Centrum

Specialists in Business Solutions:
- Mac/PC Networking
- CAD
- Desktop Publishing



Announcing "Club 5"
Unlimited Courses
5 MONTHS ONLY $555
CALL FOR DETAILS

Authorized Dealer

FREE SEMINAR:
"The New Laserwriter II Printers"
Wednesday, April 20, 1988 • Noon-1 p.m. •Call today to register! Seating limited.

Apple, Apple Logo and Macintosh are registered trademarks of Apple Computer.

1924 Franklin (in Downtown Oakland)
M-F 9-5, Sat. 10-5 (415) 465-4800

COMPUTER CASES
20% LESS
THAN THE TOP COMPETITOR'S PRICES!

- Top Quality, Hand Finished Cases
- Custom Made Cases In Any Size, Configuration, or Specification —7 Colors To Choose From!
- Wholesale Orders Welcome—Quantity Discounts
- Repair Services Available
- **MANEX** Cases Custom Built For **IBM's, APPLES, PC CLONES, PRINTERS, MONITORS, VIDEO EQUIPMENT, AND ALL OTHER COMPUTER ACCESSORIES.**

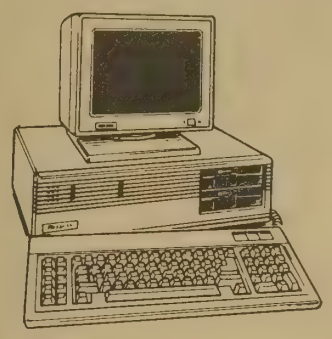
We Manufacture and Design Heavy Duty, Quality Cases for the Safe Transportation of all Types of Computer Equipment. Perfect for Computer Trade Shows, Sales People, Manufacturers. Made Locally for Speedy, Personal Service.

MANEX COMPANY (415) 533-6573
4356 COLISEUM WAY, OAKLAND

DISCOVER DARCOM

SINGLE SOURCE–FULL SERVICE
COMPETITIVE PRICES

PERSONAL COMPUTERS



COMPLETE
IBM Compatible
XT Systems
As low as $499

COMPLETE
AT Compatible Systems
Starting at $999

Amiga
AST
Compaq
Datatech
Everex
IBM
Samsung
Wyse

MONTHLY GIVE-A-WAYS

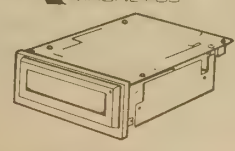
Microsoft Works

Save 40% List $195
Now $119

PC Music
Card & Composer Software
AdLib™
$245 Now $169

Desk Link
"The ultimate disk & printer sharing solution"
$169 Now $99.95

IRWIN® MAGNETICS



Tape Backup
$249

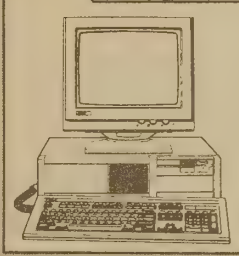
Prices reflect a 5% cash discount.

LAPTOPS

NEC
Sharp
Toshiba

In Stock Now!
As low as $699

DESKTOP PUBLISHING



FREE Desktop Publishing Software Included w/ System Purchase

Complete Systems
as low as $2999

SOFTWARE

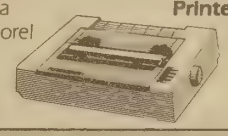
All Major Authors
Save Up To 70%

Ashton Tate • Borland • Broderbund • Continental • Design Software • Electronics Arts • Epyx • Lotus • Microsoft • Sierra • Software Publishing • Word Perfect • and much, much, more!

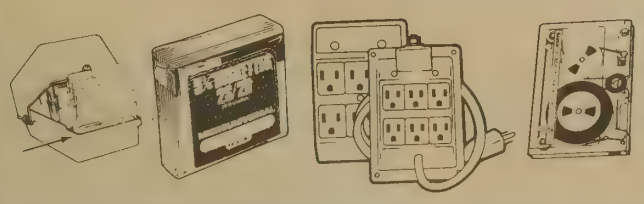
PRINTERS

- Dot Matrix Printers
- Laser Printers
- Letter Quality Printers
- Spindle & Daisywheel
- Ink Jet Printers
- Brother
- Citizen
- Epson
- Fortis
- HP
- NEC
- Okidata
- Panasonic
- Toshiba
- and more!

Save Up to $800 On Printers In Stock



ACCESSORIES



SAVE up to **50%**

NETWORKS

as low as $49.95 per node

- AST
- Novell
- Western Digital
- Desk Link
- Lap Link
- Avatar

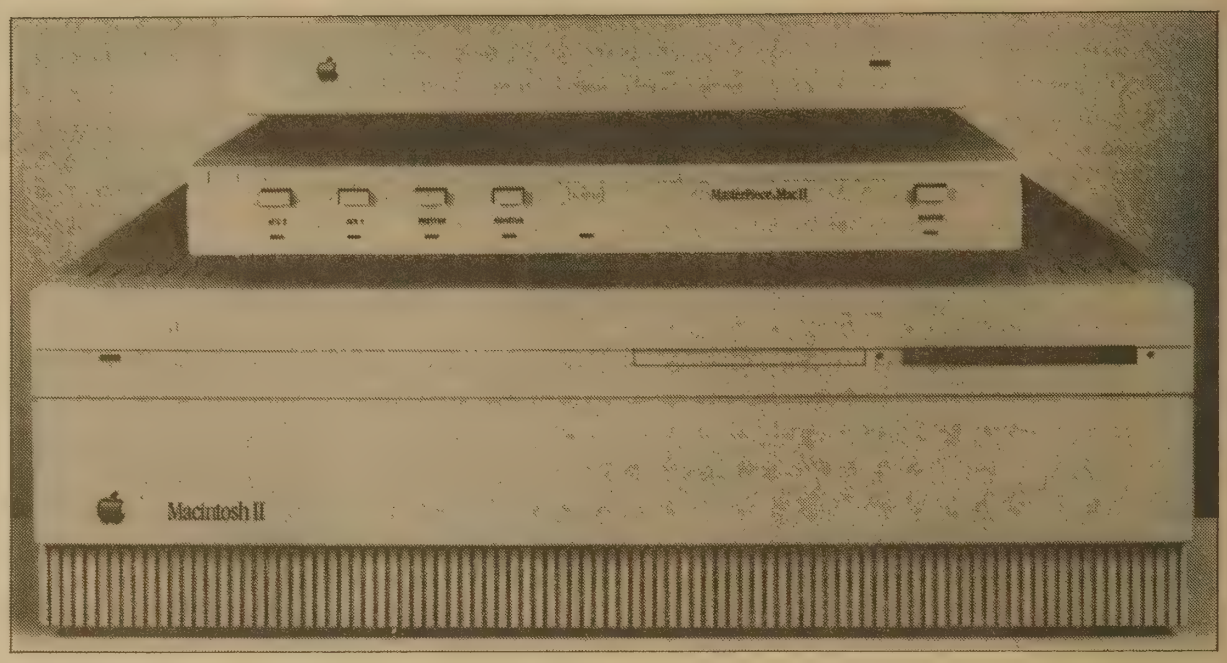
DARCOM Computer Products, Inc.
YOUR SINGLE SOURCE-FULL SERVICE DEALER
559-C Pilgrim Drive, Foster City, CA 94404
Prices subject to change without notice.

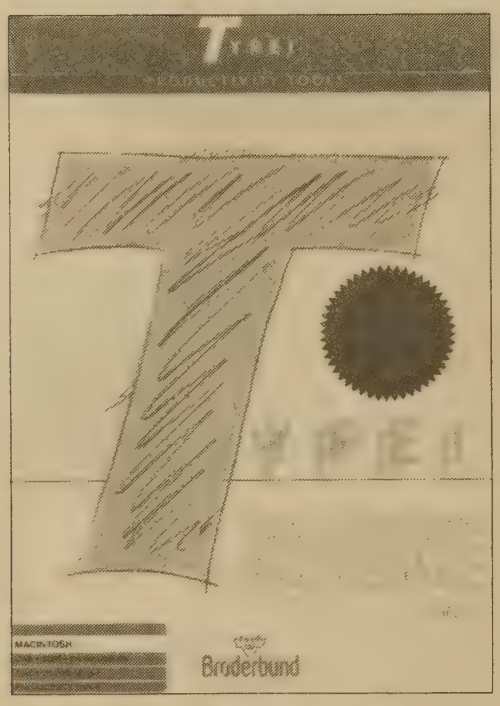
(415) 341-7112

MACINTOSH BUYERS GUIDE

Master Piece From Kensington Protects Your Mac II

The Master Piece Mac II from Kensington is a power control center that organizes and protects your entire Macintosh II system. It has a special computer outlet that is continuously powered to allow for Mac II startup and four peripheral outlets with individual and master switching. All outlets are protected with surge supression and EMI/RFI noise filtering. The Master Piece also offers modem protection from telephone electrical disturbances and a monitor swivel. ($159.) Kensington Microware Ltd., 251 Park Avenue South, New York, NY 10010. (800) 535-4242.



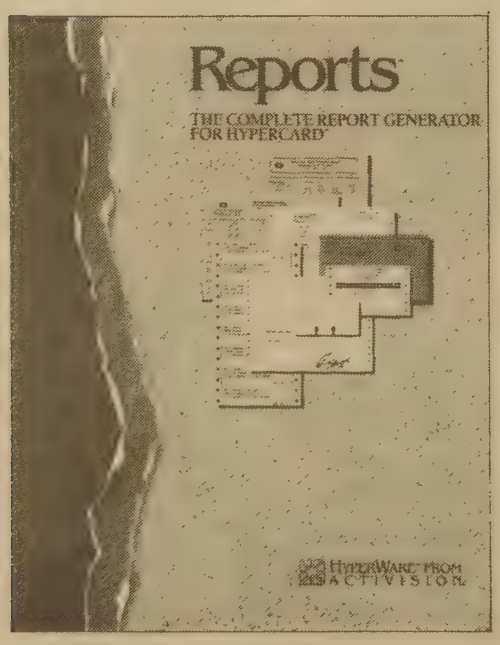


Type! Teaches Typing Skills For Keeps

Type! from Brøderbund Software takes advantage of extensive research on how people learn to type and combines that with the capabilities of the computer to create a program designed so you can learn to type quickly, accurately and for keeps. *Type!* is also valuable for those who already know how to type, as it has challanges for intermediate and advanced typists as well as beginners. It includes special drills focusing on certain skills as well as providing advanced diagnostic capabilities that measure speed and accuracy by finger, hand and letter. ($49.95) Brøderbund Software Inc., 17 Paul Drive, San Rafael, CA 94903-2101. (415) 492-3500.

DiskTop Is A Multi-Faceted Desk Accessory

DiskTop 3.03 from CE Software is a desk accessory that will find, copy, move, delete, rename and launch files from the desktop while you're working within applications. It will also erase, eject and unmount disks, create new folders, set default and preferences among a number of other features. The *DiskTop* package also includes two bonus accessories, LaserStatus, that monitors and aids laser printer activity, and *Widgets,* a potpourri of utilities in one program. CE Software, 801 73rd Street, Des Moines, Iowa, 50312. (515) 224-1995.

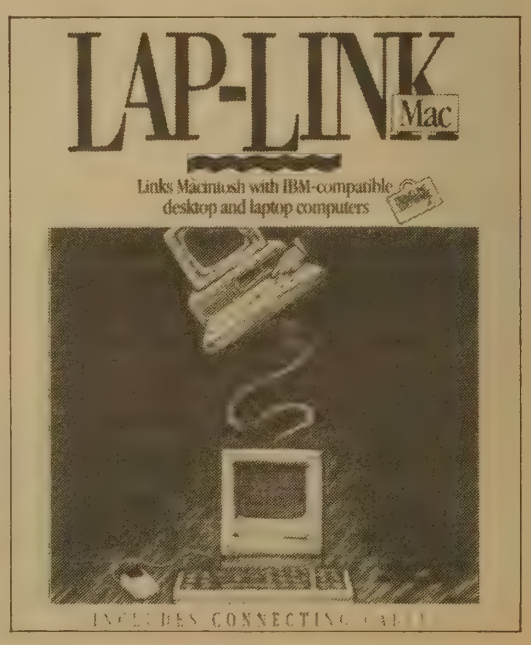


Generate Reports From HyperCard Stacks

Reports from Activision lets you generate reports from the information already stored in your *HyperCard* stacks. You select the information fields from any card or stack and design a report with the layout editor. It allows up to five levels of sorts and breaks in any report. *Report* takes advantage of the Mac inteface by allowing your reports to contain any combination of fonts, print styles and graphics. Because it is a Hyperware product it allows access to all HyperTalk comands and scripts. Activision, Inc., P.O. Box 7287, Mountain View, CA 94039.

Connect Macs And PCs With Lap-Link Mac

Lap-Link Mac from Traveling Software lets you transfer files back and forth between Macs and PCs at up to 57,000 baud. Using nothing more than a four way cable and software, Lap-Link Mac connects any IBM-PC or compatible desktop or laptop computer, including the new PS/2 models, to any Macintosh, 512, Plus, SE or II. On the screen Lap-Link Mac offers a split-screen design that show you which files your working with, making it easy to transfer PC subdirectories into Mac file folders. Traveling Software, 19310 North Creek Parkway, Bothell, WA 98011. (206) 483-8088.



Amiga - Commodore Computers Users Show

Don't Miss the most Exciting Show on the West Coast Exclusively Devoted to the Amiga and Commodore Computers

Santa Clara Convention Center
5001 Great American Parkway
(Next to Great America Park)
Santa Clara, California

Sat., May 14, '88 10-8 pm
Sun., May 15, '88 10-5 pm

One Day Adm. Exh. Only	$10.00
One Day Adm. w/ Lectures	$15.00
Two Day Adm. Exh. Only	$15.00
Two Day Adm. w/ Lectures	$25.00

This Show will Feature:

Animation & CAD
Business & Database Software
Desktop Publishing
Games & Entertainment
Graphics
Hard Drives & Memory Exp.
Music Software
Programming Languages
Public Domain Software
Spreadsheets
Simulators
Telecom. & Utilities and many more . . .

There will also be two full days of lectures and seminars

Featured speakers will be:

- Jim Butterfield
- Jim Mackarz
- Dale Luck
- Pat Bailey
- Ed Havlick
- Brad Covey
- Robert Simpson
- Frank Kelly
- R.J. Mical and many more . . .

Partial list of Exhibitors (as of April 1st)

A-Squared Dist Inc • ACDA Corp. • AT &T Liquidators • A/Desktop Video • Accolade, Inc. • Ahoy • Amiga East • Amiga World • Augmant • Brown-Wagh • Capcom • Compusave • Computer Room • Discount Software • Floor Cover System • Freespirit • GBS Enterprises • IDS of California • IPS • Infinity Sofware • Inforite Corp • Intensive Care • Interactive Computer Products • Magatronic • Mardian Software • Merrill, Ward & Assoc. • Micro Deal/Michtron • New Horizons Software • New Text • New Wave Software, Inc. • Other Guys • Ready Soft • Sam C Uta Intl. • Skyles Electric Works • Sonas • Unibind of No. California • Winner's Circle

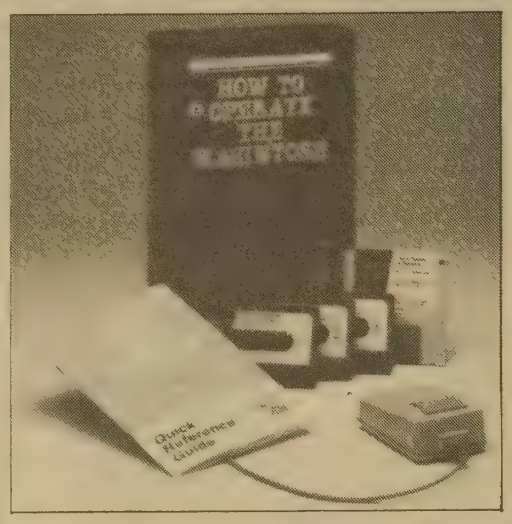
This show is a marketplace for buyers and sellers of Amiga - Commodore Computers

For exhibitor and general information call or write:

Golden Gate Shows • PO Box 587 • Corte Madera, CA 94925
• 1-800-344-3773 • In CA (415) 388-8893

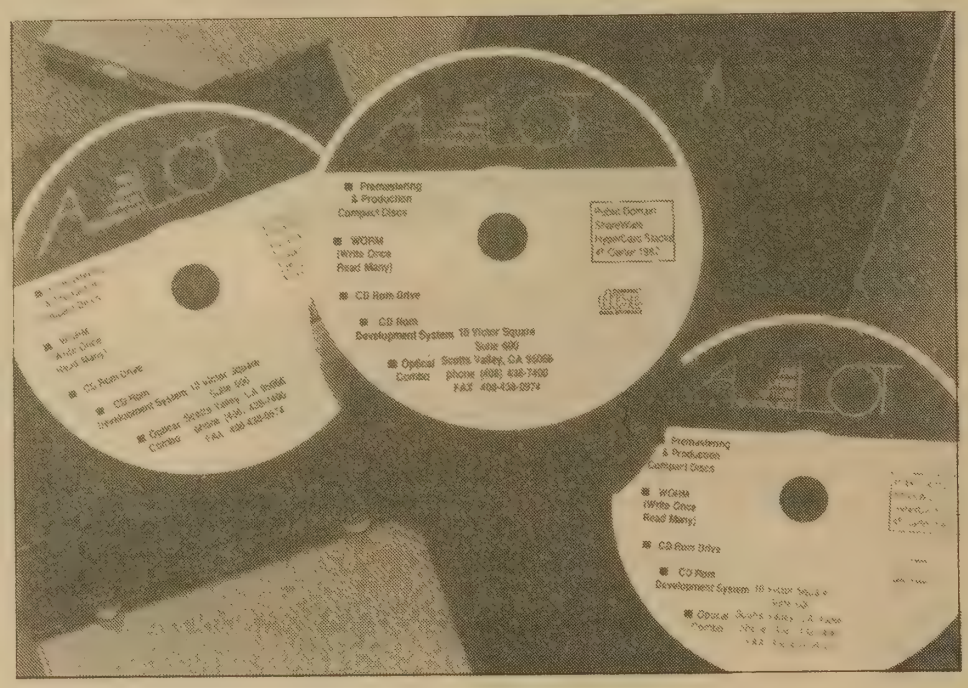
* Amiga and Commodore are registered trademarks of Commodore-Business Machines Inc.

MACINTOSH BUYERS GUIDE



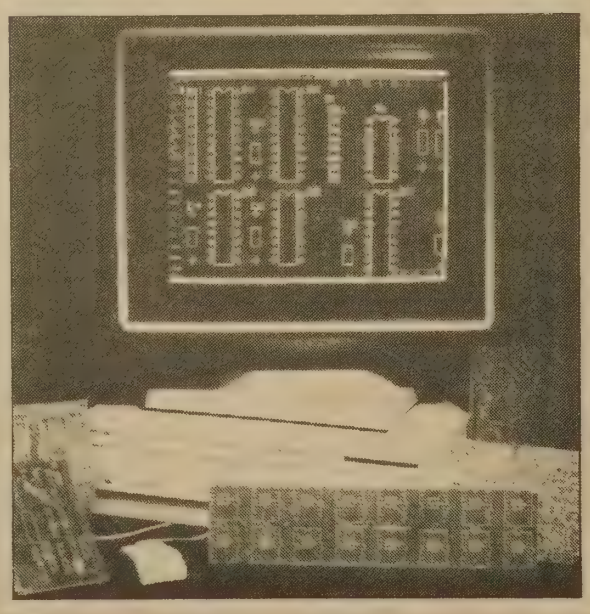
Audio Course From FlipTrack Helps You Learn The Mac

How To Operate The Macintosh from FlipTrack Learning Systems is a three tape audio course that helps you learn the basics of the Macintosh Plus and SE. It allows even novice users to master disk storage with the HFS filing system and customize their configurations with the Font/DA Mover. The tapes also come with a training disk that contains sample files and graphics along with a fully-indexed quick reference guide. ($89.) FlipTrack Learning Sytems, 999 Main Street, Glen Ellyn, IL 60137. (800) 222-FLIP.



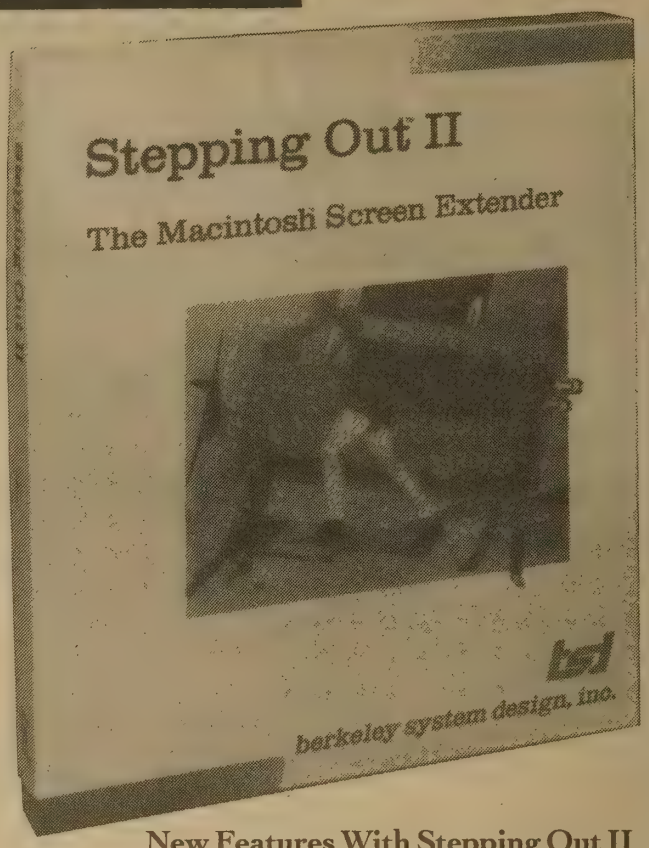
Software On CD-ROM From ALOT

Arc Laser Optical Technology (ALOT) offers public domain, shareware and stackware on CD-ROM for the Mac. The ALOT disk provides 100 megabytes of public domain and shareware software, along with 10 megabytes of *HyperCard* stacks. Purchased alone the price of the disk is $300. When an ALOT CD-ROM drive is purchased for $1,190, the disk is free. Arc Laser Optical Technology, 10 Victor Square, Suite 600, Scotts Valley, CA 95066. (408) 438-7400.



Professional System CAD/CAM Printed Circuit Board Designer

The Professional System integrated printed circuit board CAD/CAM system from Douglas Electronics supports the Macintosh II. The fully integrated system is made up of three independent parts, a Layout Program, a Schematic Capture and an Autorouter. The Professional System allows layout files to be transferred via modem or mail to be manufactured into artwork and/or circuit boards. Douglas Electronics, 718 Marina Blvd., San Leandro, CA 94577. (415) 483-8770.

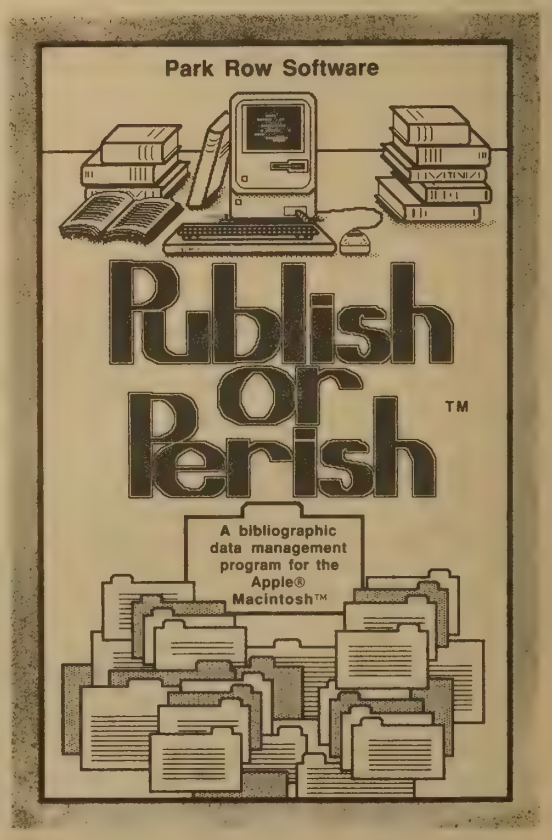


New Features With Stepping Out II

Stepping Out II: The Macintosh Screen Extender from Berkeley Systems Design lets you reap many of the benifits of a full screen display without the expense of added hardware. New features include full compatibility with the Mac II and MultiFinder, all new control panel, 75% reduction for wide word processing documents, fixed menu bar and tool palettes and screen view locking. Upgrade for those who purchased *Stepping Out* after October 31, 1987 is free. The price for registered owners who send in their original disk is $19.95. Regular price $95. Berkeley System Design, 1708 Shattuck Ave., Berkeley, CA 94709. (415) 540-5536.

Let Your Mac Help You Publish, Not Perish

Publish Or Perish is a bibliographic data management program for the Macintosh. It lets you create an unlimited number of reference cards specially designed to help you organize your bibliography. You can format your bibliography, choosing literary or scientific style, alphabetic order, numbering and annotation. You can also enter a title for your bibliography. Park Row 1135-C Garnet Ave., San Diego CA 92109. (619) 581-6778.



Bay Area's Largest Software Selection

MSDOS Software

Microsoft PC Excel	$299
Microsoft Windows 2.0	69
Microsoft Windows 386	149
Microsoft Quick C	69
Microsoft Quick Basic	69
Microsoft Works	139
Microsoft Word	229
Ansa Paradox 2.0	439
Solution System Brief	189
Solution Systems Dbrief	99
Symantec Q&A	239
Foxbase Plus	229
Foxbase Plus 386	349
Ventura Publisher	499
Publishers Paintbrush	195
PC Paintbrush Plus	109
Desq View	99
Wordstar Release 4	249
DB XL	139
Multimate Advantage II	259
Easy Working Writer	9
Sidekick Plus	129
Front Runner	139

MAC Software

Ready Set Go 4.0	$339
Image Studio	319
Adobe Illustrator	319
Reflex Plus	169
Pixel Paint	279
Microsoft Word	249
Microsoft Excel	249
Microsoft Works	199
dBase Mac	299
Fastback Plus	69
Suitcase	49
Quickeys	89
Turbo Pascal	69
Write Now	119
Deluxe Music Construction	79
NFL Challenge	69
Dollars and Sense	99
Studio Session	65
Full Paint	69
Jam Session	39
Desktop Express	99
Mind Write	99
Trapeze	179

...plus much much more...

Plus AT&T Computers and Networks

6386 WGS 40Meg System	$4680
6312 WGS 40 Meg System	2530
Starlan Network Access Unit	299

Plus Laptops

Toshiba T1000	$849
Toshiba T1200	2395
Sharp 4501	659
NEC Multispeed EL	1595
NEC Multispeed HD 20 Meg	2395

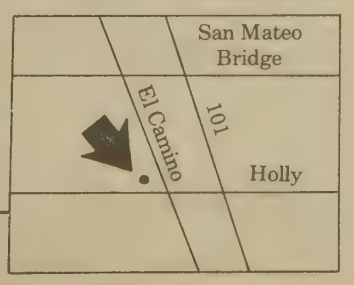
Plus More Hardware

Vega VGA	$349
Intel Above Board/286	339
Practical Modem 2400	179
NEC Multisync II	599
NEC P6 Printer	499
NEC P7 Printer	699
Citizen 180D Printer	199
Amdek CD Rom Laserdrive	649
Complete Hand Scanner	199
Complete Answering Machine	289
NEC Multisync GS	199

Friendly Software Store

Price subject to change without notice.

VISA



376 El Camino Real, San Carlos, CA 94070 415-593-8275

James Burke On The Computer Age

One Of Public Television's Most Popular Figures Talks About History, Hypermedia And The Personal Computer Revolution.

By Robert Grant Beauchamp

If you tend to flick through the channels of your television, you may have stopped one day when you saw James Burke in the middle of a green field in England explaining with an excited voice how the stirrup led to the development of the atomic bomb. You may have kept flicking (your loss) or you may have watched with increasing delight as you were taken on a roller coaster ride through history.

James Burke's specialty is tracing history in order to describe how technology has changed the way in which western society views itself and its world. His two television series that have aired in the United States, *Connections* and *The Day The Universe Changed*, have become PBS favorites and have found their way into the curriculum at several major universities.

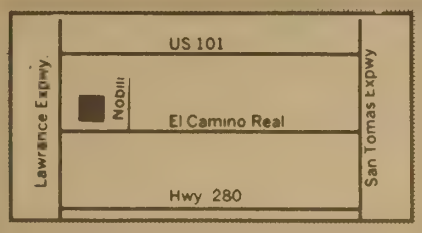
Now doing the preliminary work for his next, as yet untitled, series, he recently gave a lecture at a packed Masonic Auditorium in San Francisco. The major focus of his talk was the ways in which the information age, driven by the techology of the computer and hypermedia, might change the way in which we view the universe.

He talked about how the invention of the printing press and the book in the Renaissance released us from reliance on human memory and triggered the development of science as we know it today. In the same way, he says, the computer and, specifically, hypermedia, are changing our reliance on the printed word. Since technology determines the way we think, Burke maintains, then the computer can't help but have an incredible impact on changing our world.

Burke, an Irish-born Londoner, has produced a number of science series for the BBS and is somewhat surprised at his success in the States. While in San Francisco he found time to talk with us during his busy lecture tour.

Do you think computers are going to be as important as printing presses were in the Middle Ages in changing our view of the universe?

I think more so. In terms of human society I would say that the computer is likely to be the single biggest major



ACCESS
COMPUTER TECHNOLOGIES

3393 El Camino Real, Santa Clara, CA 95051

(408) 247-4444

OPEN 7 DAYS
Mon-Fri 10-8 Sat/Sun 10-6

VISA Price subject to change w/o notice Exp 5/8/88

EQUITY™ II+ PERSONAL COMPUTER

Your Authorized EPSON Dealer

EQUITY LT LAPTOP COMPUTER

EQUITY™ II+

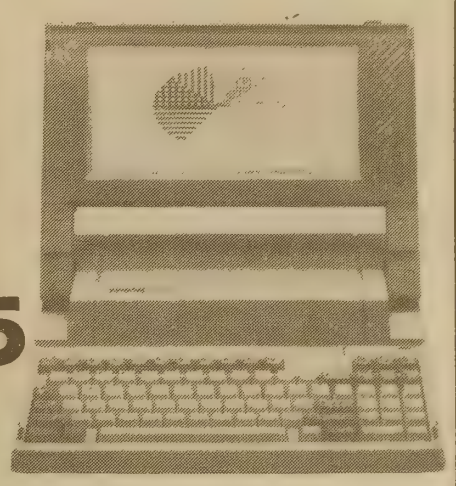
- MS DOS 3.2
- 8/10 MHz AT
- Small footprint
- Allows 3½" ht. storage devices
- Includes "XTree" software
- Enhanced keyboard
- Parallel/Serial Port

$1095

EPSON COMPUTERS NOW AVAILABLE AT YOUR ACCESS

EQUITY LT™

- 80% of 286 speed (v30)
- Choice of 2 displays
- Separate numeric keypad
- 2 drive or 20 MB config
- Includes "XTree" software
- MS-DOS 3.2
- Parallel/Serial port
- RGB graphic card



$1295

Monitors/Graphics

Price, Quality & Service

All Printers on Sale

Paradise VGA Plus 800x600 PS/2 **$289**

Vega VGA	289
Everex VGA	259
NEC MVA 1024X768	889
Genoa SuperEGA HI-RES+	189
Everex 800x600	169
Paradise EGA480	179
ATI EGA Wonder	189
Everex EGA480	149

Complete AT System

- 10 MHz 0 Wait
- Western Digital Controller
- Teac 1.2MB
- 512K Memory
- AT Keyboard
- MGP Card
- 1 Yr. Warranty

$899

10 MHz 0-WAIT STATE

FREE DOS STEP BY STEP

Complete XT System

- 10 MHz 0 Wait
- 360K TEAC
- 640K Memory
- AT Style Keyboard
- Mono Graphic Printer Card
- Mono Monitor
- 1 Yr. Warranty parts & labor

$555

EPSON Free Printer Cable

LX800	$199
FX86e	299
FX286e	399
EX800 300CPS	429
EX1000 300CPS	499
LQ500 24-PIN	379
LQ1000 24-PIN, 132 COL.	489
LQ850 24-PIN	529
LQ1050 24-PIN, 132 COL.	729
LQ2500 24-PIN, 132 COL.	859

THOMSON Ultrascan 800x560 IBM PS/2 **$439**

NEC Multisync XL 19"	$1999
NEC Multisync Plus	899
NEC Multisync II	585
SONY Multiscan 1302	629
SONY Multiscan 1303	535
Mitsubishi DiamondScan	529
Casper EGA Monitor	349
Samsung RGB Color	225
Samsung Hi-Res Monochrome	75

COMPLETE 12 MHz 0 WAIT AT $999

The most Powerful 20 MHz 80386

20 MHz Hi Speed Norton Si=22, Landmark=26.7
EGA 640x480 on Board
1MB RAM on Board expandable to 2MB
2 parallel and 2 serial ports on Board
Western Digital WAII, Floppy & Hard Disk Controller
Teac 1.2MB Floppy Drive
80387 & 80287 Sockets on Board
AT Enhanced Keyboard, 101 Keys

New

$2222

Panasonic

KX-1080i M2	179
KX-1091i M2	209
KX-1092i	329
KX-1592 132 COL.	429
KX-1595 132 COL.	469
KX-1524 24-PIN, 132 COL.	529

FUJITSU **DL3400** 24 pin, 132 col.
Color Option **$599**

Miniscribe
40 MB Hard Disk AT/XT, ½ Height **$345**

Micropolis
71 MB Hard Disk 30 ms, Full Height **$699**

Seagate Seagate
Hard Disk Drives

20 MB w Controller & Cables	$259
30 MB w RLL Controller	$289
40 MB ST251 38 ms	$399
40 MB ST251-1 28 ms	$499
40 MB ST4053 28 ms	$529
60 MB ST277 RLL	$579
80 MB ST4096 28 ms	$699

All Drives Come with Software

Miniscribe Hard Disk

40 MB Min 3650	$345
40 MB 6053 28 ms	599
72 MB 6085 28 ms	795

Everex Tape Backup

Teac 40 MB Int/Ext	$495/565
Teac 60 MB Int/Ext	539/629
Archive 40MB Int	335
Archive 60MB Ext	649

NX-1000 star micronics **$189**

NEC **P2200** 24 Pin Tractor Incl. **$345**

"In a way hypermedia is to the computer what the use of the printing press is to ink and paper, because ink and paper existed before the printing press. But the printing press gave it an entirely new dimension."

jump since the alphabet. Without a doubt.

What is it about the computer, then, that will make this possible?

Any major change in the ability to exchange information is a critical element in change in life. Being historically inclined I tend to go on historical precedent. If you look at what happened before, you see that the ability to handle concepts seems to be the key at each jump. The ability to use cave painting for the concept of a successful hunt says that there is some exchange there which relates to the way they are going to act together to be successful. That's generally accepted to be a time when we perhaps developed our linguistic skills.

Again with the alphabet, the alphabet is a major leap in the ability to deal with concepts in the sense that you don't have to have signs that say "tree" or "bush," you can have signs that say "Republican."

With the printing press you have the ability to store conceptual thinking and disseminate it on a mass scale accurately enough for it to be compared in very great detail. What that fundamentally gives birth to is modern science itself. Which is based on correlation, comparison and verification, attempts to falsify and therefore verify theory.

The computer in the upcoming generation, the one that's generally called the fifth generation, and artificial systems will be doing the same thing, will they not? They will be using symbolic logic to conceptualize elements.

Looking back at history I think it's a matter of scale and complexity. At each level that you get a jump in the complexity ability, you get a jump in effect. The computer is a major jump in the ability to exchange complex data and, above all, to cause it to interact in a complex manner, and it seems to me that it is in the interaction that the social effects are seen most.

Is it that interaction that distinguishes it from electronic media such as television or radio?

Oh yes, television and radio are, it seems to me, extremely peripheral. Television is literally like a dot matrix printer on the screen, the radio is an adjunct to the transmission of noise. Yes, they've had their effect, but they only work one way. There are phone ins, but even on the highest possible level they're minimal compared with the smallest amount of packet switching.

There's been a lot of talk lately about hypermedia. Is the computer just a tool to realize the potential of hypermedia?

It's difficult for me, or, I think, most people, to conceive of something beyond hypermedia, because hypermedia would seem to be exactly what the computer was going to be about. This kind of interconnectivity, as in Ted Nelson's idea that every document contains a universe. Every word in every document is linked to every word that is linked to that word and every concept and every thing conceivable that may be linked in that network of linkages. Again going back to history, in a way hypermedia is to the computer what the use of the printing press is to ink and paper, because ink and paper existed before the printing press. But the printing press gave it an entirely new dimension.

People seem to automatically realize the historical significance of hypermedia and the computer. In the Middle Ages were there people going around saying,"Wow! the printing press! this is going to change the world!"?

Yes, one or two visionaries said that. There where people writing back there like Erasmus, who saw the potential of the printing press and above all the ability of it to democratize information and to free people from the shackles of illiteracy and ignorance. Very few people heard about that, of course, since in the early days of the printing press the dissemination of these views was not as instant as ours are.

There was also the the opposite view, which was very much the same kind of thing we get today, that said, this instrument, the printing press, will control us. This new thing called a book will destroy the social fabric because the social fabric is based on memory. It will make old people unimportant because young kids will learn from a book and they won't have the wisdom of the old people and they'll just go crazy.

They said people will learn things that people should not learn, there are certain kinds of people that should know certain things and others that shouldn't and you're going to throw this stuff open to people who will use it. They warned of a population of technology-dependent illiterates. In the 16th century, that's what people said about the book. So we have a very similar reaction both pro and con in terms of the advent of a new technology.

You do hear a lot about American students becoming illiterate. Do you see this, then, as a transition into some new form of literacy?

I'll stick my neck out: I don't think that the problem of being able to put an apostrophe in the right place is going to destroy society. Let me answer this in two parts. Part one says that the ability to write properly is an ability that will become as obsolete as was the ability to remember properly when the book came out. The ability to add up is already becoming obsolete because of the widespread use of calculators. The ability to think in straight lines one step after another will become obsolete as the computer makes it possible to think heuristically, associatively, with the use of hypermedia. I think we're coming to the end, simply, of a period, which we could call the Gutenberg period, when writing, making scratches on paper, was very important. And those scratches are now temporarily made on a television screen and will be replaced presumably by computers that can talk.

That's part one. Part two is to say that the thing that people point to as a danger and describe as growing illiteracy, I don't think is that. I think it is the things that are happening as the school system breaks down. And what that is, is the growing lack of awareness of the social responsibilities and discipline and responsible behavior and motivation to work and all those virtues we regard as being valuable, which break down as the educative system breaks down. That's not specifically anything to do with being literate.

"They warned of a population of technology-dependent illiterates. In the 16th century, that's what people said about the book. So we have a very similar reaction both pro and con in terms of the advent of a new technology."

The Renaissance was fueled by the discovery of the Greeks and the Romans combined with new technology. Are we on our own in the sense that we don't have any old Greeks to go back to? Are we really out on a limb with our new technology?

I think basically we're on our own, yes, there is nothing to rediscover back then because the Renaissance genuinely was a rediscovery of scientific information, above all, that had been lost.

There is one little area, and I say this very carefully, because you can sound like a real weirdo. One of the things that happened in the scientific revolution of the 16th and 17th century was that people like Descartes taught us reductionism. They said here's a problem. To understand a problem you take it in pieces, you reduce problems, you reduce nature to its component segments and when you've done that then you know how they fit together and then you know how they work. So in one sense that will tell you how nature works and in another sense that will tell you how to solve a problem.

That's well and good, but I think that has led us to a reductionist view of things which has given us specialization in science and technology which is so fragmented that one kind of molecular biologist can't talk to another. There is the beginnings of a view, aided and enhanced by the use of the computer itself, that says there are interactions between these different areas. It asks if there are ways in which molecular biology has something to say to electrical engineering in terms of information theory, for example, and how these things function and are these interactive patterns working at a larger level.

Now you can't see those patterns or even begin to talk about them until you have the ability that a computer gives you to play with massive amounts of data and see patterns where you couldn't see them before because you didn't have a tool to do that. If there's anything akin to a move through into a Renaissance, then I think that's probably what it is. A realization of some processes

continued on page 97

HOME OF FAST, CONVENIENT, COURTEOUS SERVICE

fry's ELECTRONICS

541 LAKESIDE DRIVE
SUNNYVALE

PHONE:
408/733-1770

VARIETY OF VALUES

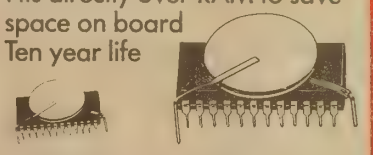
SMD REMOVEL SYSTEM $419

SMT-W2

Variable Temperature Controller, Tweezer-Action Handpiece, Handpiece Stand, Wide Variety Of Optional Tips, Dual 80 Watt Ceramic Heating Element Provides Rapid Heat Recovery and Exceptional Temperature Stability

BR2325-CO2 Lithium Coin Cell $2.29

- Fits directly over RAM to save space on board
- Ten year life



80387-16

intel MATH COPROCESSOR

$495

20 MHz $799

PALM ERASE

Logical Devices $49.95

Industry's smallest UV EPROM eraser, designed for field service & engineering applications where space is at a premium. It's extremely fast & can erase in less than 3 minutes. A small tray can accommodate a single 24 or 28 pin EPROM at a time. Avg. bulb life 3000 hours.

1 MEG SIMM MODULE 100 N.S. (Toshiba) $549

844-1 Computer Clock Battery

- Direct replacement for Real Time Clock battery in the following computers:

IBM® PC-AT
Compaq Deskpro 286® & 386®
AT&T 6300 Plus™
NCR PC3
Epson Equity™ III
Wyse Technology 2108, 2112, 2200, 2214, & 3216
Leading Edge D™ & M™
Sharp® 7500
IBM 8150 Processor
PC's Limited 286™ & 386™
IBM 8775 Display Terminal
AST Premium/286™ & 386™
AMDEK System/286™, 286A™, 386™ & 386®
Altair Exchange MFX 100
Everex Televideo

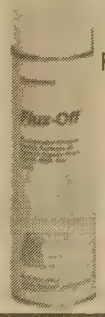
$12.99

intel MATH COPROCESSOR

PC/XT 8087		AT 80287
$95	5/6 MHz	$179
$149	8 MHz	$249
$199	10 MHz	$299

5% CASE DISCOUNT ALL CHEMICALS IN STOCK

FLUX-OFF



Removes All Types Of Organic Rosin Flux, 24 Oz.

$4.99

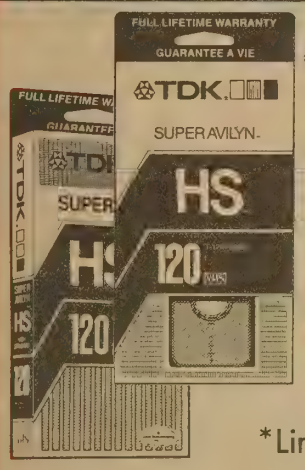
SPECTRONICS CORPORATION

EPROM ERASERS

MODEL	Capacity Chip	Intensity (uW/CM2)	Unit Price
PE-140	9	8.000	$87.95
PE-140T	9	8.000	$118
PE-240T	12	9.600	$187.95

★ ★ ★ ★ ★ ★ FANTASTIC BUYS FROM FRY'S ★ ★ ★ ★ ★ ★

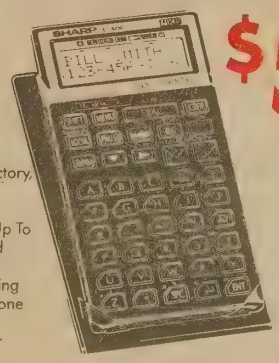
TDK HS T-120



$2.88

*Limit 20 Per Customer

SHARP POCKET TELEPHONE AUTO DIALER CALCULATOR

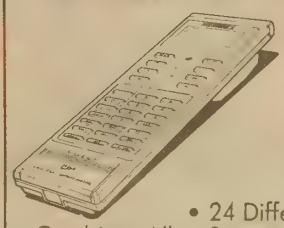


$54.95

- Telephone Directory, Memo Pad and Calculator
- Stores & Dials Up To 194 Names and Numbers (4KB)
- One Touch Dialing Through Telephone Mouthpiece
- Basic Calculator Functions

Model EL-6250

MEMOREX CP8 UNIVERSAL REMOTE CONTROL



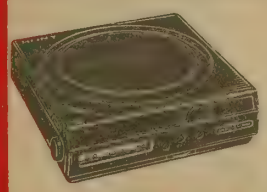
$98

- Combines All Your Current Remote Controls Into One! (up to 8)
- 24 Different Sequence Programs With Up to 48 Commands Each
- Built-In Clock With 5 Times For Automatic Operation
- Large, Easy-To-Read Display

SONY's

Most Affordable Portable CD Player with AM/FM Stereo Player

D-T3 Discman

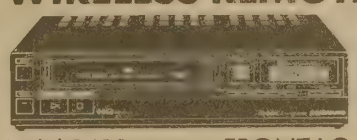


- Built-in AM/FM stereo tuner
- Ultra-compact size
- Supplied rechargeable battery and battery compartment
- Automatic Music Sensor™ (AMS)
- Shuffle play plus disc repeat modes
- Auto Tracking recovery
- Unilinear Converter™ with digital filter

$188

SAMSUNG

HQ VHS VCR WIRELESS REMOTE

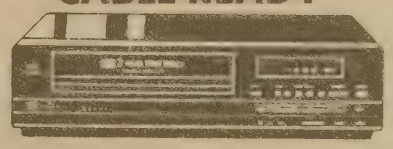


Model 2400 FRONT LOAD

- 14 Day/4 Event Programmable Timer
- Up to 8 Hours Recording

$169

MAGNAVOX HI-FI HQ 4 HEAD MTS VCR WIRELESS REMOTE CABLE READY



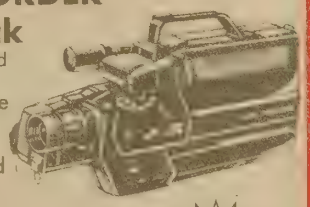
Model 9664

- On Screen Display
- Variable Slow Motion (SP/SLP)
- High Speed Picture Search
- Auto On • Auto Rewind • Auto Eject • Auto Off
- 21 Day/8 Event Programmable Timer

$469

PANASONIC HQ VHS CAMCORDER

In Stock



- High speed shutter
- CCD image sensor
- Flying erase head (glitch free stop/start)
- 6:1 power zoom
- Auto focus

PV-320

Includes Hard Carrying Case!

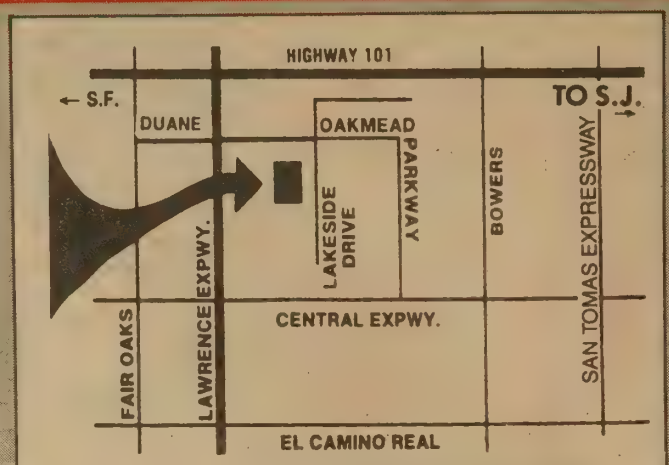
$1079

HOME OF FAST, CONVENIENT. COURTEOUS SERVICE

fry's ELECTRONICS

541 LAKESIDE DRIVE
SUNNYVALE

PHONE:
408/733-1770



Prices Good Through May 8, 1988

HOURS:
Mon.— Fri.
8 am-8 pm,
Sat. 9-6,
Open Every Sunday 9-6
VISA,
MASTERCARD
WELCOME
Limit Rights Reserved

BLUE CHIP ELECTRONICS

PC POPULAR 4.77/8 MHz TURBO XT MONO SYSTEM

- 256K RAM Expandable to 640K on Motherboard
- 360K Floppy Disk
- Multi-Video Card for CGA/ Hercules/MDA
- Serial/Parallel
- Mono Monitor
- Logitech Mouse

$488

BLUE CHIP ELECTRONICS

6/10 MHz AT MONO SYSTEM

- 512K RAM Expandable to 2 MB on Motherboard
- 5¼" 1.2 MB Floppy Disk
- 2 Serial Ports
- Parallel Port
- Clock/Calendar
- Hi-Res Monographics
- Mono Monitor

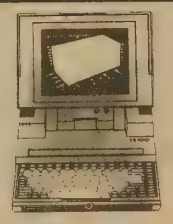
$949

EPSON EQUITY II+ 8/10 MHz AT MONO SYSTEM

- 640K RAM
- 5¼" 1.2 MB Floppy Disk
- Serial/Parallel Ports
- Clock/Calendar
- Hi-Res Monographics
- Mono Monitor
- MS/DOS 3.2
- GW Basic

$1249

TOSHIBA T5100



- The ultimate portable 386 PC.
- Desktop power, in a compact 15 lb. package that's just 12.2"W x 3.5"H x 14.2"D.
- 80386 CPU at 16MHz; 80387 co-processor socket.
- 40MB hard disk, 1.44MB 3½" diskette drive.

$5695

COMPAQ 12 MHz DESKPRO 286 MONO SYSTEM

- 12 MHz 80286
- 256K RAM Expandable to 2MB
- 1.2 MB Floppy Disk
- Serial/Parallel Ports
- Clock/Calendar
- Hi Res Monographics
- Mono Monitor

$1995

intel INBOARD 386

386 YOUR PC/XT or AT!

PC/XT
1 MB RAM
10 Times Faster Than An XT!
$849

AT
0K RAM
5 times
Faster Than An AT
$1049

Microsoft SERIAL-PS/2 MOUSE

w/PC Paintbrush Slick, Smooth and Incredible To Use

$109.95

Seagate 20 MB HARD DISK DRIVE

Controller
Cables
ST-225

$259

Seagate 30 MB HARD DISK DRIVE

RLL Controller
Cables
ST-238

$289

2400 BAUD 1/2 CARD MODEM

Internal
Hayes Compat.
By Practical Peripherals

$169

2400 BAUD EXTERNAL MODEM

Hayes Compat.
By Practical Peripherals

$199

AST RESEARCH INC. TurboLaser/PS

Adobe PostScript Laser Printer

- 3 MB RAM
- 12.5 MHz 68000
- Apple Talk, RS232C & Parallel Port can be connected to IBM, Apple & DEC computer equipment
- 8 pages/minute
- 35 resident fonts
- 300 DPI resolution

$3295

The Cost Effective High Speed Solution

AST RESEARCH INC. Mac 286

Runs MS-DOS Applications
Like Macintosh Software
Allows For: 640K RAM
Math Coprocessor
Operations
Hercules or CGA Supports

$1049

MONITERM

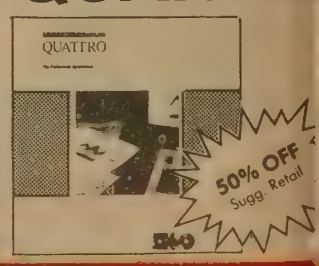
VIKING I 19" IBM HI-RES MONO MONITOR

1280x960
Hi-Res Graphics and Monitor and Card

Desktop Publishing

$1795

QUATTRO



FRY'S WONDERFUL WORLD OF COMPUTERS

APPLE MACINTOSH PLUS

- 1 MB RAM
- 3.5" 800K Floppy
- Mono Monitor
- Serial/SCSI Ports

FREE SCSI Cable

$1349

IBM PS/2 MODEL 50

20 MB MONO SYSTEM

- 10 MHz 80286
- 1 MB RAM Expandable to 7 MB
- 3.5" 1.44 MB Floppy Disk
- 20 MB Hard Disk
- Hi-Res Monographics
- IBM 8503 Mono Monitor

$2895

IBM PS/2 MODEL 25

MONO SYSTEM

- 8 MHz 8086 0 Wait State
- 512K RAM Expandable to 640K on Motherboard
- 720K 3.5" Floppy Disk
- Mouse/Keyboard Ports
- Clock/Calendar
- Mono Monitor

$899

APPLE MACINTOSH II

MONO SYSTEM

- 1 MB RAM
- 800K Floppy Disk
- Serial/SCSI Ports
- Mouse
- Apple Keyboard
- Monographics Card
- Apple Mono Monitor

$3695

maxell MD-2D 5¼" DS/DD DISKS

Box of 10

$7.49

SUPERMAC TECHNOLOGY DATAFRAME 60XP

60 MB HIGH PERFORMANCE

RLL SCSI HARD DISK
For MAC PLUS/SE/II

$1095

NEC P2200

24 PIN PRINTER

170 CPS Draft
55 CPS NLQ
Tractor Feed

$579

NEC MULTISYNC II

EGA/VGA MONITOR

800x560 Res.
31 Dot Pitch
Tilt 'n Swivel

$349

Mountain.

THE PEAK OF PERFORMANCE

40MB TAPE BACK-UP

New QIC-40 Industry Standard!

Works in IBM PC/XT/AT or PS/2 or Compatibles
Menu Driven
Advanced Feature Software

$379

High Performance Spreadsheet With Database Business Graphics, Application Development Environment!

$123.75

PACKARD BELL

EGA MONITOR

640x350
Tilt 'n' Swivel
.31 Dot Pitch

$399

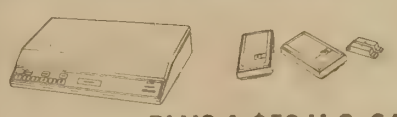
ORCHID

DESIGNER VGA

640x480 with 256 Colors
EGA/CGA/MDA Modes
IBM XT/AT/PS/2-30
132 Column Mode

$295

SCHLAGE KEEPSAFER PLUS



$299

PLUS A $50 U.S. SAVINGS BOND

Purchase A Keepsafer Plus or a Keepsafer with Five Qualifying Accessories Between April 1 and May 30, 1988, Send In Your Proof of Purchase to Schlage and Schlage Will Send You a $50 U.S. Savings Bond!

GET THE HI-TECH ADVANTAGE WITH A 386.....

TeleVideo® 386

MONO SYSTEM

- 0 Wait State 16 MHz 32 bit 80386
- 2 MB of 80 ns RAM
- 1.2 MB Floppy Disk
- Serial/Parallel Ports
- Clock/Calendar
- 80387 Socket
- Hi-Res Monographics
- Mono Monitor

FREE 1 Year On-Site Service On Base Unit

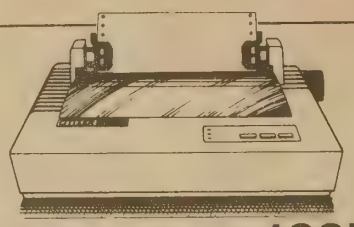
$2795

COMPAQ® DESKPRO 386

40 MB MONO SYSTEM

- 16 MHz 80386
- 5¼" Floppy Drive
- 1 MB RAM
- 40 MB Hard Disk
- Serial/Parallel Ports
- Clock/Calendar
- Hi-Res Monographics
- Mono Monitor

$4895



CITIZEN™ 120D

- 120 CPS Draft
- 16 CPS NLQ
- Tractor Feed
- 80 Column
- 1 Year Warranty

$149

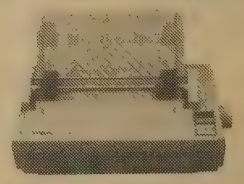
AMAX 386 MONO SYSTEM

- 16 MHz 80386
- 5¼" 1.2 MB Floppy Disk
- 1 MB Ram Expandable to 2 MB on Board
- Hi-Res Monographics Printer Card
- Mono Monitor

$2395

EPSON® LX-800

180 CPS DRAFT
25 CPS NLQ
80 COLUMN
TRACTOR FEED
1 Year Warranty



$199

*****LAPTOP COMPUTER SPECIALS*****

TOSHIBA 1200

4.77/10 MHz 80C88

- Super Twist LCD Display
- 3½" 720K Floppy Disk
- Serial/Parallel Port
- 20 MB Hard Disk Drive
- Clock/Calendar
- 512K Expandable to 640K

$2495

ZENITH data systems Z-183 LAPTOP PC

- 4.77/8 MHz 80C88
- 640K RAM
- MS-DOS 3.2
- Serial/Parallel/RGB Ports
- Backlit LCD Monitor

$2195

COMPAQ® PORTABLE III 20 MB LAPTOP COMPUTER

- 12 MHz 80286
- 640K RAM Expandable to 6.6 MB RAM
- 5¼" Floppy Disk
- 20 MB Hard Disk
- Serial/Parallel Ports
- Amber Plasma 80 x 25 Line Display
- Full Size Keyboard

$3695

MOUSE PAD

Give Your Mouse A New Pad! Asst'd Colors

$7.95

3M DATA SAVER

DISKETTE BOX
Attaches to side of monitor or desk to hold 10 diskettes

$2.95

MINI I/O XT

Parallel/Serial/Game
Clock/Calendar
1/2 Card

$59.95

KENSINGTON

80 COLUMN PRINTER MUFFLER

$49.95

MOUSE HOUSE

Keep Your Mouse Warm With A Furry Cover

$6.95

AB SWITCHBOX DB2525-2

A to B
2 way
Printer Switch

$24.95

MINI I/O AT

Parallel/Serial
Game Port

$59.95

KENSINGTON

136 COLUMN PRINTER MUFFLER

$59.95

KEYTRONICS

101 KEY RT Keyboard

$59.95

MAXISWITCH

101 KEY RT Keyboard

$74.95

IBM 6' PRINTER CABLE

$3.95

★★★★★

SERVICE

- Hard Disk Installation
- EPSON Printer Repair
- Novell Network Configuration
- PC/XT/AT/386 System Diagnostics

AVAILABLE 7 DAYS A WEEK

HOME OF FAST, CONVENIENT COURTEOUS SERVICE

Fry's ELECTRONICS

541 LAKESIDE DRIVE
SUNNYVALE

PHONE
408/733-1770

Prices Good Through May 8, 1988

HOME OF FAST, CONVENIENT, COURTEOUS SERVICE

fry's ELECTRONICS

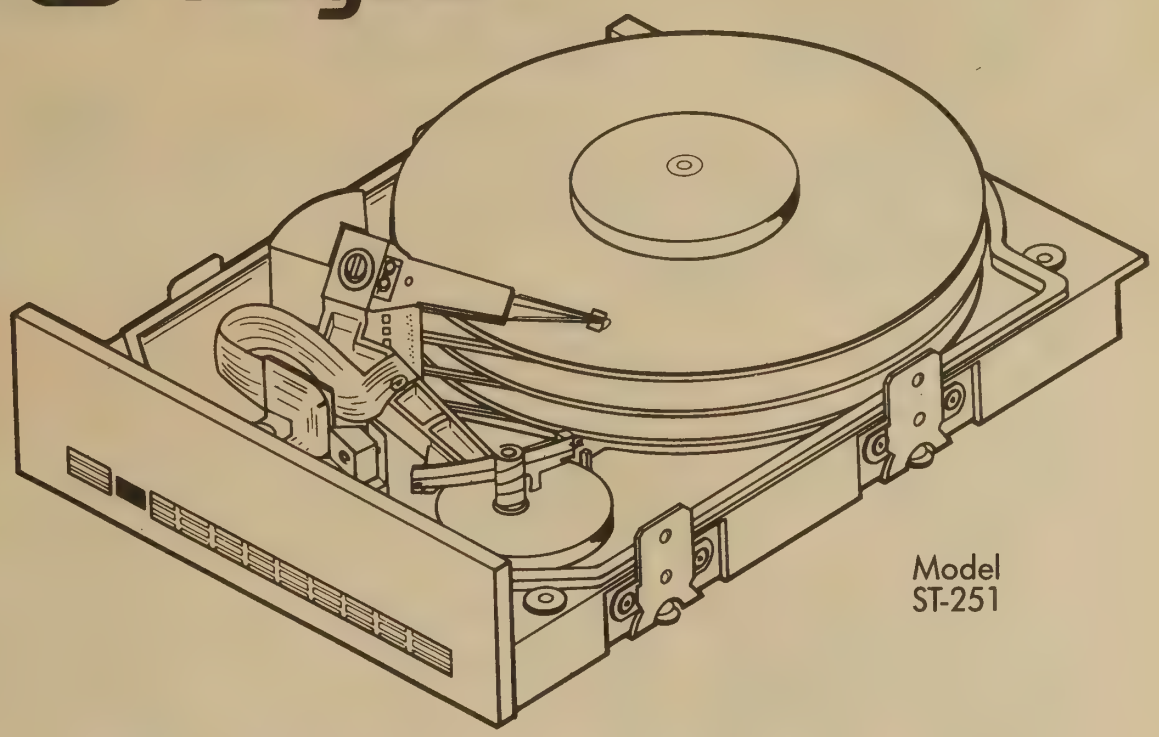
541 LAKESIDE DRIVE
SUNNYVALE

PHONE:
408/733-1770

The First Place To Look For The First Name In Drives . . . .

Seagate

You Will Find Seagate 5¼" Hard Disc Drives In More Than 6 Million Small Computers & Systems. You'll Also Find Them At Fry's At Everyday Low Prices!



Model ST-251

Seagate Drives Are Built With Consistent Quality To Ensure Exceptional Performance In Every Drive.

★ ★ ★ Seagate STAR SELLERS ★ ★ ★

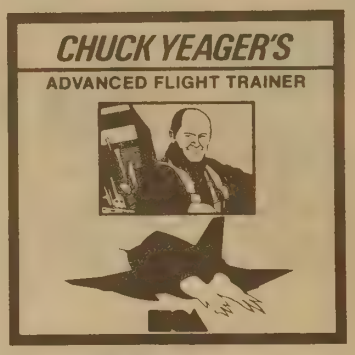
20 MB KIT **ST-225** 63 ms Drive Controller Cable Set **$259**	**30 MB KIT** **ST-238** 63 ms Drive RLL Controller Cable Set **$289**
63 MB KIT **ST-277** 63 ms Drive RLL Controller Cable Set **$699**	**40 MB DRIVE** **ST-251** 39 ms Drive 1/2 Ht. Size Low Power **$399**
40 MB DRIVE **ST-4053** 28 ms Drive Full Height For AT's **$699**	**82 MB DRIVE** **ST-4096** 29 ms Drive Full Height For AT's **$749**

FREE. PICK ONE.

Buy 2 Deluxe Products and Get 1 Deluxe FREE From Now Through June 30th

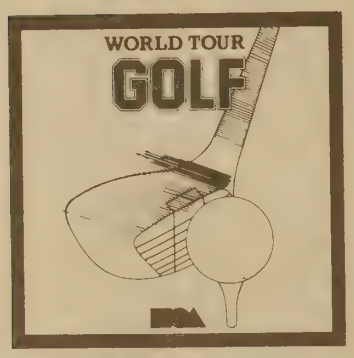
$59.95 IBM

$69.95 IBM



$26.95 IBM

$37.95 IBM

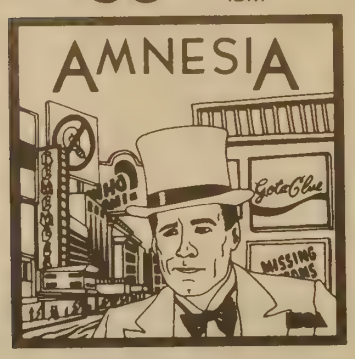


$36.95 IBM

$27.95 IBM

$32.95 IBM

$32.95 IBM

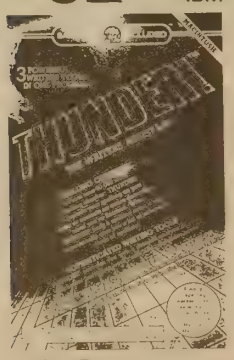


$32.95 IBM

$24.95 IBM

$79.95 MAC

$28.95 MAC



$29.95 ATARI ST

$54.95 ATARI ST

$29.95 ATARI ST

$34.95 ATARI ST

HOME OF FAST, CONVENIENT, COURTEOUS SERVICE

ELECTRONICS

fry's

541 LAKESIDE DRIVE
SUNNYVALE

PHONE
408/733-1770

Picks The Winners For You From:

ELECTRONIC ARTS®

PARTNERS IN PERFORMANCE!

HOME OF FAST, CONVENIENT, COURTEOUS SERVICE

fry's ELECTRONICS

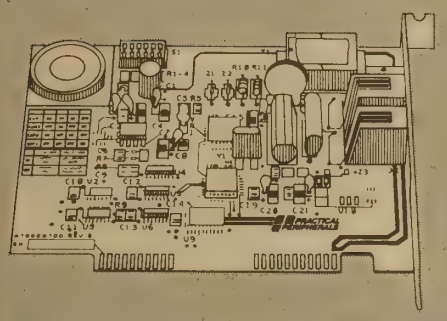
541 LAKESIDE DRIVE
SUNNYVALE

PHONE:
408/733-1770

&

PRACTICAL PERIPHERALS®

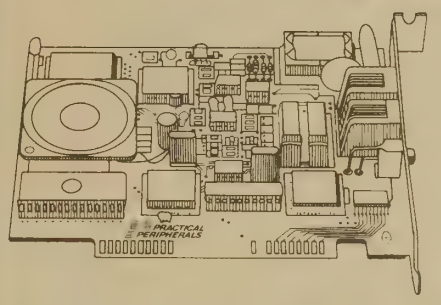
INTERNAL 1200B MODEM



100% Hayes Compatible
Pop Down Auto-Dialer & Pro Comm Software

$59.95

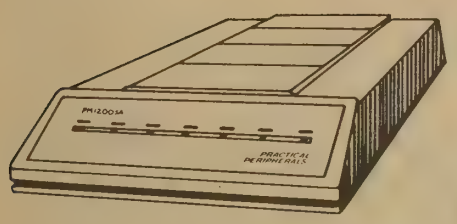
INTERNAL 2400B MODEM



100% Hayes Compatible
Auto Adaptive Equalization for Error-Free Transmission
Pro Comm Software

$149.95

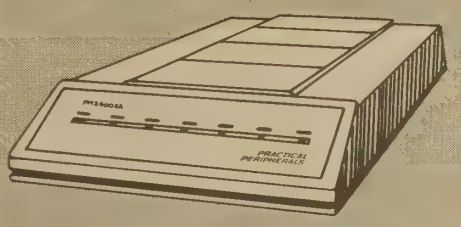
EXTERNAL 1200 BAUD MODEM



Hayes Compatible with EEPROM Allows 10 User Telephone Numbers and Menu Set-Up

$109.95

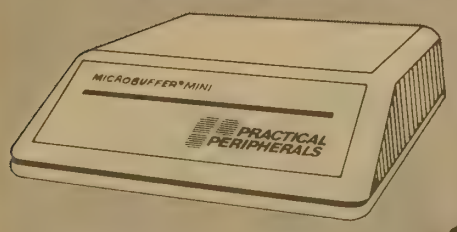
EXTERNAL 2400 BAUD MODEM



100% Hayes Compatible
High Speed Data Transmission for Lower Phone Rates

$179.95

MICROBUFFER MINI



32K expandable to 512K RAM
Compact Stand-Alone Printer Buffer

Available in:
Serial to Parallel
Parallel to Parallel
Parallel to Serial

$69.95

MADE IN U.S.A.
PRACTICAL PERIPHERALS
5 YEAR GUARANTEE
FACTORY REPAIR OR REPLACEMENT

PERFORMANCE

FEATURES

VALUE

PROUDLY MADE IN THE U.S.A.

TETRIS

By Spectrum Holobyte

THE SOVIET CHALLENGE

Beautiful background graphics take you through ten levels of difficulty as you try to discover the mystery of the Four Squares. Time is of the essence as you try to rotate and/or flip moving pieces to fit as they descend from the top of the screen.

The Addictive Challenge Brought To You From The U.S.S.R.

$21.95

HOME OF FAST, CONVENIENT, COURTEOUS SERVICE

Fry's ELECTRONICS

541 LAKESIDE DRIVE
SUNNYVALE

PHONE:
408/733-1770

&

maxell®

Serve You The Gold Standard On A Silver Platter

MD2-HD

$16.95

HOME OF FAST, CONVENIENT, COURTEOUS SERVICE

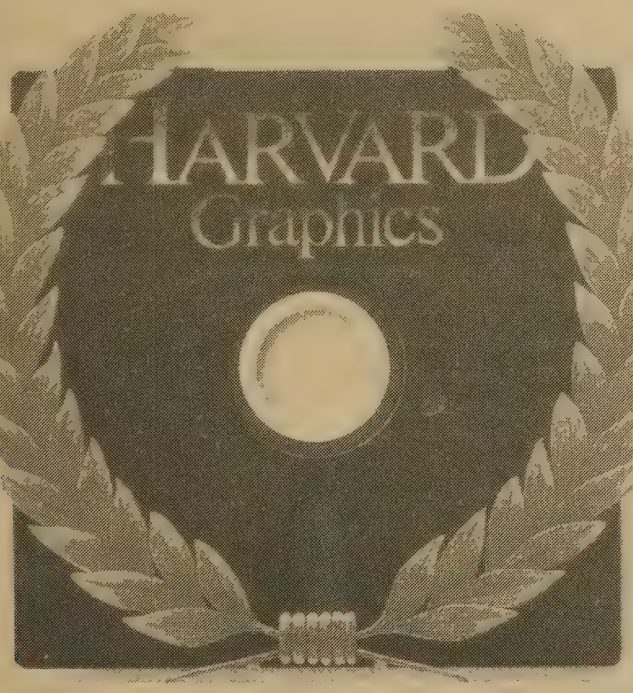
ELECTRONICS

fry's

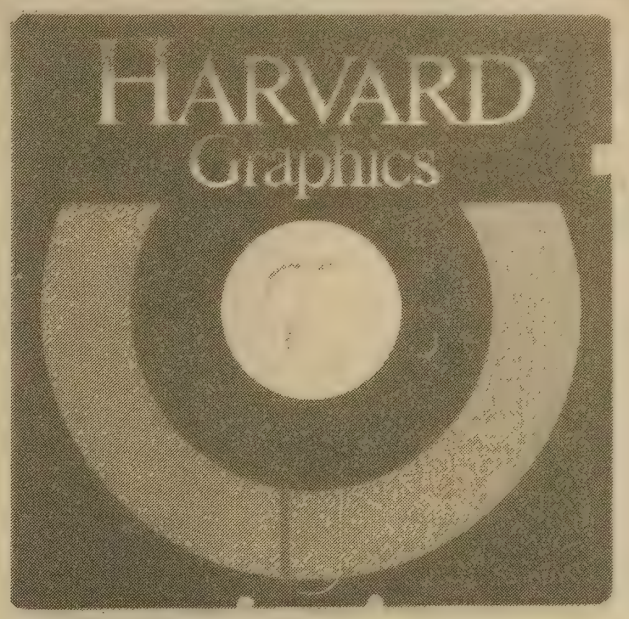
541 LAKESIDE DRIVE
SUNNYVALE

PHONE:
408/733-1770

"They (Harvard Graphics)...made the best even better." –Jim Seymour, "Best of '87" PC Magazine



"Positively Best In Show"–Infoworld 1987



Winner 1987 National Computer Graphics Association Shoot-Out.

Award Winning Performance.

There are a number of prestigious honors in the graphics business. But only one program has captured them all. Harvard Graphics.

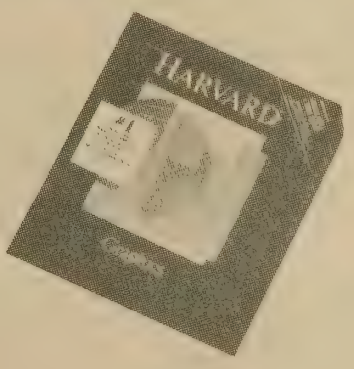
Harvard's flexibility, ease of use, and high quality output have combined to make it the unanimous choice of the nation's leading software evaluators.

We couldn't be more honored. But Harvard isn't resting on its laurels. New Harvard Graphics 2.1 adds a unique spelling checker, over 200 new symbols, improved editing capabilities and more.

There's one more recommendation we'd like to have. Yours.

Call for a free trial disk and let Harvard demonstrate its winning form.

$369



Graduate to New Harvard Graphics 2.1 with Spelling Checker.

A funny thing happened on John Hart's first day at his computer... He Got Results.

$89.95

John Hart was already convinced his new computer could make life easier. What worried John was that it would take him weeks, maybe months to get the most out of a software program.

PFS® First Choice changed all that. The first thing John noticed was the instruction manual. It wasn't huge and complicated like other software programs. In fact, First Choice let him get started immediately.

Then John found out First Choice was one integrated program that could handle all his business needs. A versatile word processor with spell checking, flexible file management, a powerful spreadsheet program, and resourceful electronic communications were right at his fingertips. And they all worked faster and more efficiently than he ever imagined.

By the end of the day, John Hart discovered that in the time he had set aside for his first lesson, he had already used First Choice to write a dozen error-free letters, create customer files, make sales calculations, and check the Dow® Jones News/Retrieval.

He can hardly wait for tomorrow.

PFS: First Choice.
No Experience Required.

WE HAVE A JOB FOR YOU!

Fry's Electronics Is A Fast-paced Retail Electronics Store Featuring Personal Computers, Peripherals, Software, Computer & Component Accessories, IC's, VCR's, Audio Components and A Full Service and Repair Department.

We Are An Innovative Marketeer With A Broad Selection Of Leading Edge Products For The Electronics Industry. Our Continued Growth Is Creating Opportunities For:

COMPUTER SALES
Ask for Janet

SERVICE TECHNICIAN
Ask for Ginger

COMPONENT SALES
Ask for Greg

AUDIO/VISUAL SALES
Ask for Bob

CASHIERS
Ask for Casey

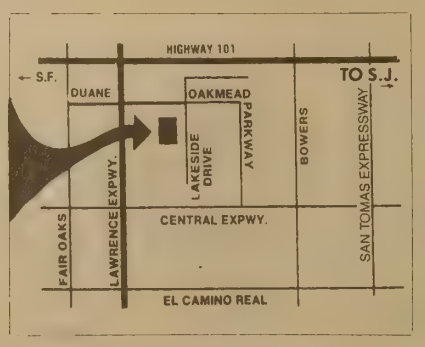
HOME OF FAST, CONVENIENT, COURTEOUS SERVICE

fry's ELECTRONICS

541 LAKESIDE DRIVE
SUNNYVALE

PHONE:
408/733-1770

CALL or COME IN and Apply Now



"I would like to believe that we will go back to the nicer side of what the nuclear family means, and living in groups that are small enough for people to act as a conscious community, and not in these massive structures called cities where we act like bits of the reductionist view of the world that the industrial revolution is all about."

that seem to be overall throughout nature. It used to be if anybody ever told you about such things forty or fifty years ago this would be kind of mumbo jumbo. Holistic medicine, flowers in your hair and all that stuff. Today I think, because of the computer we are able to look at those patterns more structurally and say yes, they are there.

We're sitting here in San Francisco on the edge of the Pacific rim, a radical clash of values. You mentioned in The Day The Universe Changed how we could, with very little trouble, come in contact with Eastern values by calling up somebody in Tibet using a modem and...

Live the electronic community?

Yes, do you see that happening?

Oh, yes, it's happening in America and I know its happening in England. To a small extent, and this is a very limited start of course, but every journey begins with a first step. Major corporations in this country are encouraging some of their people to do tele-working. Which means you don't go to the office any more and you are your office and you can live in the middle of nowhere, which you love, and you modem your stuff to the office. Most people's work these days, consists of exchanging information with other people. You go and meet people, have lunch and talk, its the talk that counts. To a certain extent the hand gripping and the drinking of wine count, but it's secondary to the talk, and that talk is being done increasingly electronically in business.

Arthur C. Clarke lives in Sri Lanka and uses up and down link and all sorts of good things to live in Sri Lanka and live in the world, and he's been doing that for twenty years, ahead of everyone else. Other people are doing it now. I have friends who live in the middle of nowhere, mostly authors or journalists, whose main job is not rushing to the scene of the crime and reporting that there was blood and guts on the floor but actually doing things like you're doing with me. And you can do this kind of work in the Himalayas and still talk to me wherever I am. I believe in a sense that we're going back to the country. We're going back to where we were before the industrial revolution, we're going back to the villages.

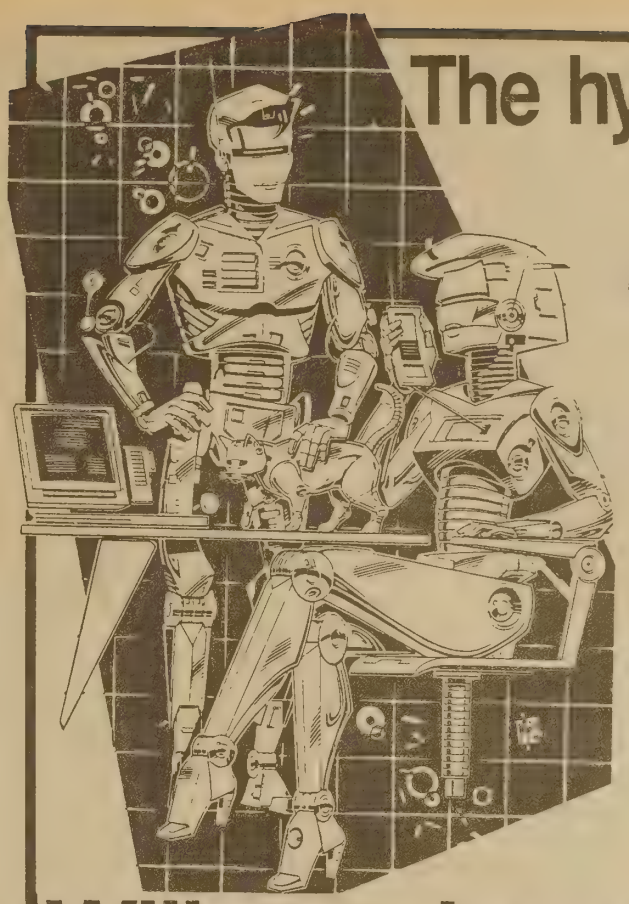
And what do you think the results of that will be?

Ah ha. Well, some key questions are what happens to marriages when nobody leaves home, what happens to people who live without backstabbing office politics.

Or those who are disadvantaged by not being there to participate in the backstabbing office politics?

Indeed, indeed. Or if a new form of electronic back stabbing develops. We face an entirely new social structure with tremendous excitement and tremendous danger.

The excitement, it seems to me, is no longer having to live this lunatic 19th century life of mass production, which gives us this slog to the office every morning, slog home again every evening, never see your spouse and children from morning to evening and to live most of your life either asleep or away from them — I mean, it's idiocy. Nobody did that until 1780. And yet we've taken to it as if it were the only true Law. And yet in terms of the history of humanity it's a blip. I would like to believe that we will go back to the nicer side of what the nuclear family means and living in groups that are small enough for people to act as a conscious community and not in these massive structures called cities where we act like bits of the reductionist view of the world that the in-



The hyperage is just around the corner.

Will you be ready?

New ways of using computers and new ways of organizing text and data are just ahead. If you're interested in **HyperCard**™, and other hypertext products, there is a publication just for you – ***HyperAge***, the first magazine devoted exclusively to this new, emerging technology.

When you read ***HyperAge***, you get advice and information from the world's most knowledgeable experts.You'll learn from writers like **Danny Goodman**, best-selling author of *The Complete HyperCard Handbook*, **Ted Nelson**, the theorist who developed the concept of hypertext, **Dan Shafer**, author of *HyperTalk*™ *Programming*, and **Mitchell Waite**, editor of those great Waite Group computer books.

HyperAge™

Call Toll Free: (800) 682-2000

YES! Enter My Charter Subscription Subscription to HyperAge Today!

☐ $19.95 for 1 Year (6 Issues) ☐ $34.95 for 2 Years (12 Issues)

☐ $49.95 for 3 Years (18 Issues)

Mail To:
HyperAge
108 East Fremont Avenue
Sunnyvale, CA 94087

☐Check ☐VISA ☐MasterCard
Card #_____ Exp:_____
Signature: _____

Name:_____
Company: _____
Address:_____
City:_____ State:_____ Zip:_____

dustrial revolution is all about. Personally I can see mostly good things coming out of this.

How will people react to this changing technology?

I think if anything, the computer and all the things we've been talking about, the social awareness of all these things, relates to the complexity of modern living and the need on the part of many people to find some way of harnessing it, to enhance life instead of making life more complex. Sometimes when I'm talking, people stand up at the end of the speech and they say "Hey listen, don't you think we're coming up against a brick wall, don't you think we're out on the edge of a life that is so complex and changing so fast that the human frame can't take it?" Sometimes I remember how to answer the question and sometimes I don't. This is what I say when I remember: we have filters built in.

Technology, it seems to me, is born brutal and grows to become user friendly at any stage in history. And that happens because some kind of filtering mechanism protects us from the brutality as it were. If you think about somebody in 1905 confronted with an automobile, saying, God I have enough in my life without that damn thing. Well, today nobody cares if you don't understand how the piston engine works. In fact it's a rare human being who bothers to even think about it. And it doesn't bother us at all.

So it seems to me that what we're looking for is more born of the need to say we're getting to the point now where we need another set of filtering. We need something that will allow us to live these complex lives without having to think about every part of them. And benefit from having the stuff, while leaving a great deal of it to the machine to think about.

At the end of Connections you said it was imperative for average people to teach themselves about technology in order to regain control of it. Do you feel the personal computer revolution is a way of regaining control of technology?

I believe so. I don't think there's anything else. Because if you think about it, back in the days of mainframe computers, and nothing else, the only way this revolution could have happened, this social revolution, would have been if it had been decided upon and provided from the center. And that would have demanded the political will and centralization of funds that in some cases goes directly counter to the American ethic itself. I mean, you people over here don't like taxation without representation and weird things like that. So the PC, in a sense, was only ever going to be the way it would go, especially in America, because that's the way things happen in the States.

But I think in another way it is a very good example of how, through history, innovation is there and is grabbed by the establishment, whatever establishment that is, and then it gets away and the kind of local contemporary hacker gets going. In a sense the PC is a kind of a multi-hacker, as everyone who has a PC is a potential hacker. There are too many people out there — I know they know very little compared to the people who write the programs and compared to the people who build the systems, but they know enough to know what they want and what they don't want. The personal effect of the PC has been, in general, enhancing peoples lives at some level or other. Maybe it's only video games, at one level and maybe at another level it may be that it helps you write better, that's what it certainly does for me.

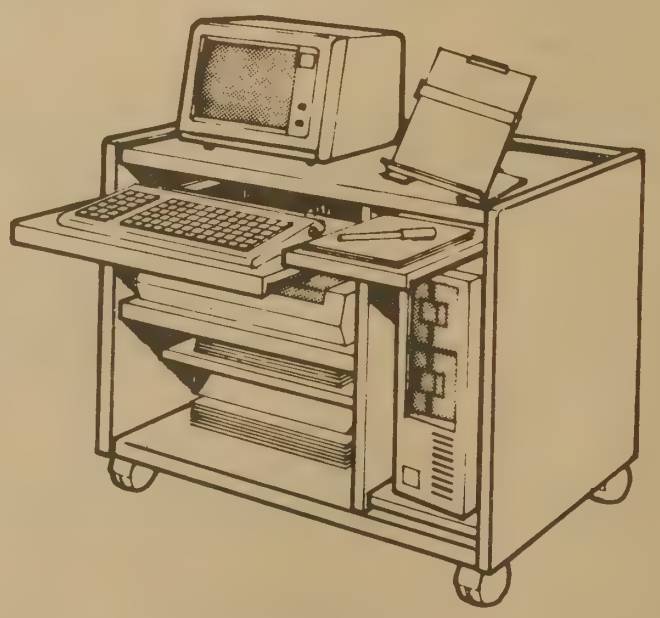
But it also makes you expect more of other areas of social activity around you. When you're in my profession and you have a PC and a modem then you expect the entities for whom you're writing to respond as you do. You expect them to be able to tell you things in terms of schedules and deadlines and above all you expect them to pay you promptly. That's a silly example, but the PC creates a network of expectations which then creates other sets of expectations and the ripple spreads. And in that sense I think that's why the PC is the tool of this social revolution that we're going through.

Getting back to what you said about American values, do you feel that the personal computer revolution could have happened anywhere else, is there something about it that is intrinsically American?

I think so, I think profoundly so, because the social structures in Europe are much more centralized than yours; I mean, you people came over here to get away from all that. America is founded on the belief that everyone wanted to be different than Europe and in a sense that's still true. It's not possible to say the PC would not have happened in England, but I think its dissemination and social effect would have taken much longer. And besides which, you're such a rich country that you can provide this stuff and give it to yourself like you've given all the other luxury items. You have a massive market where we have lots of little small fragmented markets all speaking different languages so there are many other social reasons why the PC happened here and not there.

The entrepreneurial spirit has been closely associated with the computer, especially in Silicon Valley. How are today's entrepreneurs different from the religious non-con-

limited
S•P•A•C•E



We invite you
to browse through a special selection
of mobile space saving ideas
designed to give you maximum comfort,
optimum space and
the warmth of natural wood.

COMPUTER FURNITURE

1313 El Camino Real, Belmont, CA 94002 (415) 592-7584

C • O • M • P • A • N • Y

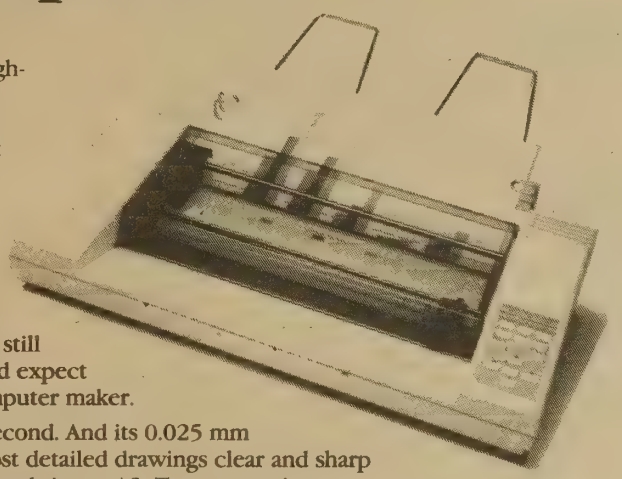
OPEN MON-FRI 10-5; SAT 12-5

FUJITSU

FUJITSU

COMPONENT OF AMERICA, INC.

ImageGraph



Here's the one high-speed, high-resolution color plotter that looks as good as it draws. It's the new compact, lightweight ImageGraph from Fujitsu. At only 420 x 260 mm, it takes up barely half the desk space of its biggest competitor. And it's nearly one-third lighter.

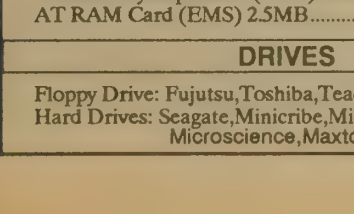
But with all its fat trimmed, it still has the rugged reliability you'd expect from Japan's number one computer maker.

It's fast, too; up to 250 mm/second. And its 0.025 mm resolution makes even the most detailed drawings clear and sharp - on any size paper from postcard size to A3. Transparencies, too.

Best of all, Fujitsu's ImageGraph is compatible with the world's most popular graphics language.

SPECIFICATIONS

	FPG-315-101
Paper size	From A3 to post-card size
Applicable paper	Normal paper (thickness 50 ~ 200 μm), overhead transparent film, etc.
Plotting area	276 x 399 mm max.
Plotting speed	250 mm/sec in the X- or Y-axis direction
Pen up/down	10 cycles/sec
Resolution	0.025 mm
Accuracy	
Length	(Plotted length x 0.5%) + 0.3 mm max.
Repeat	0.1 mm max. without changing pens 0.2 mm max. with changing pens
Perpendicular	0.5 mm/200 mm max.
Color of pens	6 colors (black, red, blue, geen, violet and orange)
Type of pens	Water-based ink ball point pen and oil-based ink plastic tip pen
Dimensions	420 x 260 x 95 mm
Weight	4.5 kg (approx.)
Interface	Centronics interface (7 or 8 bit parallel) and RS-232C interface (serial)



Cypress Distributing Company

560 Lincoln Avenue
San Jose, CA 95126
(408) 297-9800

22186 Rim Pointe
El Torro, CA 92630
(714) 770-7244

2670 Truxel Road
Sacramento, CA 95833
(916) 646-1955

(Outside CA) 1-800-344-3044

FULL SERVICE AT DISCOUNT PRICES

DEMO FOR ALL SYSTEMS AND DESKTOP PUBLISHING

WYSE 386

40MB Hi-Res ZERO WAIT **$4095**

HIGH RES OPTION FOR CAD AND DESKTOP PUBLISHING

- Modular System Architecture
- 80386 CPU At 16MHz. 0 Wait State
- Dedicated 32 Bit Memory Bus
- WYSE 700 Monitor With Controller
- 1280x800 Pixel. Ideal For ACAD or Ventura
- MS Dos 3.21 With Enhanced Features
- 40mb 28ms Hard Drive

MICROTEK Scanner

MODEL MSF-300C IMAGE SCANNER **CALL**

- Flat Bed For Easy Scanning
- 64 Shades Of Gray In Half-tone Mode
- High Resolution 300 By 300 dpi
- Scanning Software With On Screen Editing
- OCR Options For Character Recognition

PRINTERS

Brother 1509/1709	$395/565
Brother HR20/HR40	399/735
NEC P6/P7/P2200	489/635/370
NEC Laser Printer LC-890 PostScript	3599
HP Laser Jet II With Toner	1699
Fujitsu All Models	call
Toshiba 321SL/341	call
Citizen All Models	call
Okidata All Models	call

CARDS

EVEREX EVGA (1280x600) Analog or Digittal	$325
VIDEO 7 Vega De Luxe (648x480)	$225
Genoa Super EGA (800x600)	195
Paradise Autoswitch (750x350)	159
AT Memory Expansion (EMS) 2MB/4MB	139/149
XT Memory Expansion (EMS) 2MB	129
AT RAM Card (EMS) 2.5MB	99

DRIVES

Floppy Drive: Fujutsu,Toshiba,Teac,Mitsumi	call
Hard Drives: Seagate,Minicribe,Micropolis Microscience,Maxtor	call

ACER 1100

386 SYSTEM MONO 40MB **$3465**

- 80386 CPU at 16MHz. 0 Wait State
- Dedicated 32 bit Memory BUS
- RAM BIOS Allows I/O Optimization
- 40MB 28ms Hard Drive
- 14 Inch Monochrome Monitor
- Utilities Provides LIM EMS Support

WYSE 2112

MONO 40 MB **$2395**

- Modular System Architecture
- 12/8 MHz 80286 CPU
- 1 MB Memory
- Front Panel Status Display
- WYSE 530 Monitor 14 Inch
- MS DOS 3.21 With Enhanced Features
- Seagate St251 40MB Hard Drive

WYSE 2108

- 8 MHz CPU , 20 MB hard drv., mono system **$1745**

WYSE 2200

- 10/6 MHz CPU, 20 MB hard drv., mono sys. **$1895**

MONITORS

Sony Multiscan	$625
NEC MultiSync II	595
NEC MultiSync Plus	945
NEC MultiSync XL (19")	2359
Taxan Multisync 770+ (800x600)	565
Casper Mono/EGA	89/399
Samsung Mono/EGA	89/395
Wyse 530 (amber/green)	195
Wyse 700 Hi-res (1280x800)	795

MODEMS

Volk Internal 1200	$109
Avatex 1200hc External	129
Signalman 2400 External	295
USRobotics 2400 Int/Ext	199/209

SOFTWARE

Pagemaker	call
Ventura	call
MS Dos 3.3	$95

WYSE 2214

GENOA EGA TAXAN 770+ **$3395**

40 MB SUPER EGA SYSTEM

- 12.5MHz at Zero Wait State
- Genoa Super EGA (800x600)
- Taxan 770+ Multisync Monitor
- Seagate 40 MB dirve (28ms)
- MS DOS 3.21 With Enhanced Features
- 12 Months Factory Warranty

AST PREMIUM

386 286 **CALL FOR PRICES**

PREMIUM/386

- 20MHz CPU at 0/1 Wait State
- MS OS/2 Compatible; Multimaster Bus

PREMIUM/286

- 10MHz Zero Wait State
- Model 120, 140X, 170

!! SPECIAL !!

CIMPEX 12 MHz AT

- 90 % Speed of 386 CPU
- 12 MHz CPU at 0 Wait
- 512K Expand to 1MB
- Hard Disk Controller
- 1.2MB TEAC Floppy Dr.
- 12" Mono Monitor w/T/S
- MGA with Printer Port
- AT Style Keyboard

$1195

CIMPEX 10 MHz XT

- Fastest XT in the Market
- 10/4.77 MHz CPU
- 640K Memory
- 12" Mono Monitor w/T/S
- MGA with Printer Port
- AT Style Keyboard
- Clock & Calender
- Can Use 1.2 MB Drive

$595

This AD is done with Ventura Publisher. Mar 9, 1988

Cimpex computers

1398 EL CAMINO
MOUNTAIN VIEW
(415) 964-5000

(Between Bailey & Rengstorff)

Because of currency fluctuations, prices subjected to change without notice

"Technology, it seems to me, is born brutal and grows to become user friendly at any stage in history. And that happens because some kind of filtering mechanism protects us from the brutality, as it were."

formists in England in the 18th century that built the canals and factories and kicked off the industrial revolution?

I think in the main the industrial revolution springs out of the work of men who had been denied access. As indeed were the first people who printed books. They were on the fringes of society, accepted intellectual and financial structures would not accept them. Much of science comes like that.

I think it's very often the case that you get an advance where a structure is rigid and says, you do it this way or you can't do it at all, and therefore the hackers go outside and say screw you, we'll do it our way. And very often in doing so they create different kinds of things than the established structures could have created. Now I'm not sure if Steve Wozniak was booted out of some formal situation, but there's no doubt at all that those early guys were not at all conformists. Anything you read about that period is anti-conformity written very large. You weren't supposed to be doing those things in those ways at that age.

In a general sense entrepreneurialism always seems to come from non-conformity. Stasis is death, so if you want to do something exciting and you're driven, you have to do it in a new way.

Does the computer represent the tail end of the industrial revolution? Is it the last great piece of technology that comes out of this, or is it really the beginning of a different age? Not only in the technological sense but also in how that technology changes our view of the world?

Boy, that's a very interesting and difficult question. I'm trying to find an analogy in the past. Let me look at the book. What the book does is allow material technologies, above all, to do things they couldn't do before. In a sense what it did was to take the world and look at it in a new way, a new gestalt if you like. And I suppose in that sense the computer is going to do that. I mean, the good old material world is still going to be there, we'll still have coal to dig out of the ground, and steel to make things, I don't think we're going to move to some kind of ethereal universe. But I think what the computer does is to give us a totally new gestalt, a totally new perceptual box in which to put it all. When that happens you get a massive redistribution of values systems.

I'm going to stick my neck out here: I think it's going to bring us to the realization that the future can be manufactured. And I think it's going to change science fundamentally. What we've done in the last 400 years is to say to science, "go out into the outer darkness and bring us back what you discover with your brilliant serendipitous accidental activity and we'll live with what you bring back."

I think we'll stop that because the computer will allow us to say "run the future for us and tell us what it's likely to be like and we'll tell you what we want." That's a very different kind of society than the one that we have pretended to live by since the Greeks, i.e. the spirit of free inquiry.

I say pretended to, because it's been an illusion all along. And I think in a sense the computer will bring us closer to the truth that we've lived with all along that science only *appears* to be a free activity. That science is as socially sourced as every other human activity. A scientist in the Middle Ages did it because his boss wanted it. Scientists in the 19th century, like Edison, did it for money. Some people did it by accident, Fleming left the mold out and got penicillin, but he had to be doing what he was doing because the grant allowed him to be doing it. And the grant and the boss and the money making are all socially sourced factors.

It seems to me that if the computer does anything, it's going to give us a kind of conceptual freedom of information act. I think the computer will bring us the realization that society does what society wants. And the more people that are involved in making that decision, the better. And far from going down the road towards determinism and the limitation of science and technology by social constraints, that's a process towards a kind of democratization that we could never have had without the computer. □

Norm De Nardi Presents:

California Computer and Graphics Show

The only Computer and Graphics Show in California that highlights technology for the OEM, systems integrator, software and hardware designer.

Exhibit Features:

- **Graphic Displays & Controllers**
- **Supercomputers**
- **Workstations**
- **UNIX**
- **Desktop Publishing**
- **CAD/CAM**
- **Printers/Plotters**
- **Imaging Systems & Controller Boards**
- **Software**
- **Artificial Intelligence**

NDN ENTERPRISES
289 S. San Antonio Rd.,
Suite 204
Los Altos, CA 94022
(415) 941-8440

. . . attention Aerospace and Defense Contractors!

Conveniently located at the Palo Alto Hyatt Hotel, this one day show gives you the opportunity to meet today's industry leaders and tomorrow's innovators who can furnish you with solutions to your hardware and software needs.

Update your calendar now.

Call or write Norm De Nardi Enterprises for your free invitation, 289 S. San Antonio Rd., Suite 204; Los Altos, CA 94022, (415) 941-8440.

WHEN!
May 26, 1988
12 P.M.-6 P.M.

WHERE!
Palo Alto Hyatt Hotel
4290 El Camino Real
Palo Alto, CA

NDN Enterprises 289 So. San Antonio Rd., Ste 204 Los Altos, CA 94022 (415) 941-8440

NDN

I'll Be There! Please send me an invitation to the California Computer and Graphics Show.
☐ **My interest is:** ☐ **Computers** ☐ **Peripherals** ☐ **IBM** ☐ **Graphic Displays** ☐ **UNIX** ☐ **DEC** ☐ **VME** ☐ **Workstation** ☐ **CAD/CAM** ☐ **H.P.** ☐ **Data Communications**

Name _____
Title _____
Company/Division _____
Address _____ Phone _____
City _____ State _____ Zip _____

WHOLESALE PRICES

SAVE-BUY DIRECT FROM FACTORY

XT-TURBO COMPLETE SYSTEM

- 4.77/8 MHz switch clock speed
- 256K RAM installed on motherboard
- 360K Floppy drive w/controller
- XT/AT style keyboard
- Hi-Res Mono Amber monitor w/swivel
- Monographics card w/printer port
- 150 W switching power supply
- 8 expansion slots
- Fully assembled & tested
- Full one year warranty

Suggested: $899 **$465**

AT-TURBO COMPLETE SYSTEM

- 6/10 MHz switch clock speed
- 512K RAM installed on motherboard
- 1.2 MB Floppy drive w/controller
- AT style keyboard
- Hi-Res Mono Amber monitor w/swivel
- Monographics card w/printer port
- 200 W switching power supply
- CMOS clock/calendar
- 8 expansion slots
- Fully assembled & tested
- Full one year warranty

Suggested: $1495 **$899**

SYSTEM BOARDS (W/Zero K)

- 2 Layers TURBO XT (4.77/8 MHz) ---------- $89
- 4 Layers TURBO XT (4.77/8 MHz) ----------$103
- 4 Layers TURBO AT (6/10 MHz) ----------$310
- 4 Layers TURBO BABY AT (6/10 MHz)---------$300

POWER SUPLLY

- 150 Watts---------- $47
- 200 Watts---------- $75

CASE

- XT Slide-in (FCC)---------- $25
- XT Flip-top w/3 LED ---------- $29
- XT Slide-in w/3 LED---------- $45
- AT Slide-in w/3 LED---------- $60

FLOPPY DISK DRIVE

- Fujitsu 360 KB ----------$75
- Teac 360 KB ---------- $85
- Teac 1.2 MB----------$115

KEYBOARD

- XT/AT Switchable---------- $35
- XT/AT Intelligent (Enhance)---------- $65

MONITOR

- Samsung w/tilt (Amber)---------- $75
- Casper EGA ----------$365
- Samsung EGA----------$345
- Samsung CGA----------$245
- NEC MULTISYNC EGA----------$585

ADD-ON BOARDS

- XT Floppy controller ---------- $17
- AT Master Floppy controller ---------- $59
- Monographics w/printer port---------- $49
- Color graphics w/printer port ----------$49
- EGA card---------- $145
- Multi I/O card w/cable---------- $65

HARD DISK DRIVE

- Seagate 20MB w/controller & software --------$289
- Seagate 30MB w/controller & software --------$325
- Seagate ST-251 40MB----------$450

PRINTER

- Panasonic 1080i ---------- $190
- All Panasonic models---------- $call

MISCELLANEOUS

- Logic Mouse ---------- $75
- DOS 3.21 w/manual----------$70
- AC Power Center----------$25
- Joystick IBM/Apple----------$19
- Printer cable---------- $9
- Everex 1200 Internal Modem ---------- $90
- Everex 2400 Internal Modem ----------$185
- Computer Paper 3000 sheets---------- $23

Call for other configurations...

Distributors & Dealers Welcome. QUANTITY DISCOUNT AVAILABLE

MD & PC PRO COMPUTERS

115 N. 4th ST., STE. 111
SAN JOSE, CA
TEL. (408) 993-1505

1394 TULLY RD. STE. 207
SAN JOSE, CA 95122
TEL. (408) 947-7738

22554 FOOTHILL BLVD.
HAYWARD, CA 94920
TEL. (415) 538-0462

Procomm Plus: Datastorm Goes Pro

By Lenny Bailes

The commercial release of *Procomm Plus* was eagerly awaited by the many users of *Procomm* v.2.42. *Procomm* in its various versions has been a shareware phenomenon that has significantly defined the state of the art in convenient user interfaces. The first *Procomm*, together with Andrew Fluegelman's *PC-Talk* and John Frieling's *QModem*, made a marked departure from the *Crosstalk* style in telecommunications. Complex status screen and numerous two-letter file commands were replaced by an uncluttered terminal screen and a set of uniform key-driven functions.

With *Procomm Plus*, DataStorm has repaid some of the compliments offered by the authors of its shareware competitors. *Procomm* premiered an automatic dialing queue with on-the-fly adjustment of dialing intervals. *QModem* adopted this and updated its dialing feature to include an on-screen log of calling statistics about each number dialed. Justin Boyan, a college student, invented a clone of *Procomm* which added easy selection of external file transfer protocols with automatic re-entry of filename information. *Procomm Plus* now includes these improvements without altering the popular screen interface of the last version.

Marketed as "intuitive communications software," *Procomm Plus* also offers an extended Host Mode, which is actually a complete message-exchange and remote file-transfer system — a full BBS within the program. This, for me, is the real reason why someone would want to purchase it in preference to one of its rival shareware competitors.

Procomm Plus has met with mixed reactions from the legions of BBS enthusiasts, who compare it with other shareware. "Why should I pay $75 for this, when I can still download *QModem GT Powercomm* or *Boyan* for free?"

Test Drive

DataStorm offers a BBS-distributed version of its new program called *Procomm Plus TD* (for Test Drive). *Test Drive* is a fully operational program. If you like it and want to keep using it, you're supposed to buy the commercial release. *Test Drive* lacks complete documentation, though, and one or two features of the full version. This has caused some members of the BBS community to label it "Crippleware" instead of "Shareware" and charge that DataStorm is treating potential new users of its product callously.

DataStorm distributed notice with *Test Drive* that *Procomm* 2.42 will continue to be fully supported, and also offers BBS on-line support exclusively for *Test Drive*. They suggest that users having difficulty with the new program can also download the manual for 2.42 to answer any questions.

Procomm Plus and *Procomm Plus TD* both provide context sensitive help from within the program. This allows an easy basic setup with a Hayes compatible modem. However, some veterans of 2.42 have expressed frustration at their inability to fine-tune *Test Drive*. There are differences which are not explicitly dealt with in the abbreviated documentation. One piece of information which is going to be included in an update is that the symbol for carriage return/linefeed has been changed from an exclamation point (!) in 2.42 to Control-M. If you transfer your configuration and scripts from 2.42, you need to know this!

A representative from DataStorm commented to me that the pared-down documentation with *Test Drive* was not so much caused by a desire to tantalize the user as by space considerations. They wanted to keep the trial package complete on a single disk.

The commercial package includes a full 300-plus page manual and two executable files not provided with *Test Drive*. These are a small screen-editor and a keyboard remapping function. The commercial version also includes an installation setup automatically entered for many non-Hayes compatible modems. Otherwise, the BBS-distributed and commercial program files are identical. The shareware version also displays an introduction screen which BBS hackers will find a way to dispense with almost immediately.

A few weeks after initial release, official patches for both versions were released to BBS systems. These correct minor flaws, and DataStorm confirmed to me that an upgrade will shortly be issued containing these patches in the code. There is a patch to fix colors for EGA display, one for the Kermit protocol, one to stop extra linefeeds from being inserted by the break key and a correction of a switch to half-duplex mode after some operations. There's also a screen-display speed up effected by bypassing some code.

The promptness of this response by DataStorm is, to me, an indication that they still consider the BBS community to be its window on the computer world, and don't intend to desert it.

So Do You Need The $75 Version?

Bearing in mind that the excellent *Procomm* 2.42 is still readily available and supported for $25, and considering its estimable competitors, *PC-Talk*, *Qmodem*, *GT Powercomm*, *Boyan* and *Telix*, why would you want to spend $75 for *Procomm Plus* — or upgrade for $25 from 2.42?

The script language is quite extensively supported in the commercial package. A supplemental disk of dial and log-on scripts for most commercial and shareware BBS software is included.

Well, the script language is quite extensively supported in the commercial package. You don't have to do any programming to take advantage of this. A supplemental disk of dial and log-on scripts for most commercial and shareware BBS software is included. You can easily sign on to CompuServe, GEnie, Fido, Opus, or RBBS-PC. You can load the program in Host Mode or otherwise automate file transfers, all without typing a single "DIAL," "TRANSMIT" or "IF" statement. Procomm Plus also has a "Learn Mode" similar to *Desqview*'s for recording a script log-on procedure as you enter it from the keyboard. There are freebies included with the package for time on GEnie and CompuServe, and a huge list of free BBS numbers for most major U.S. cities.

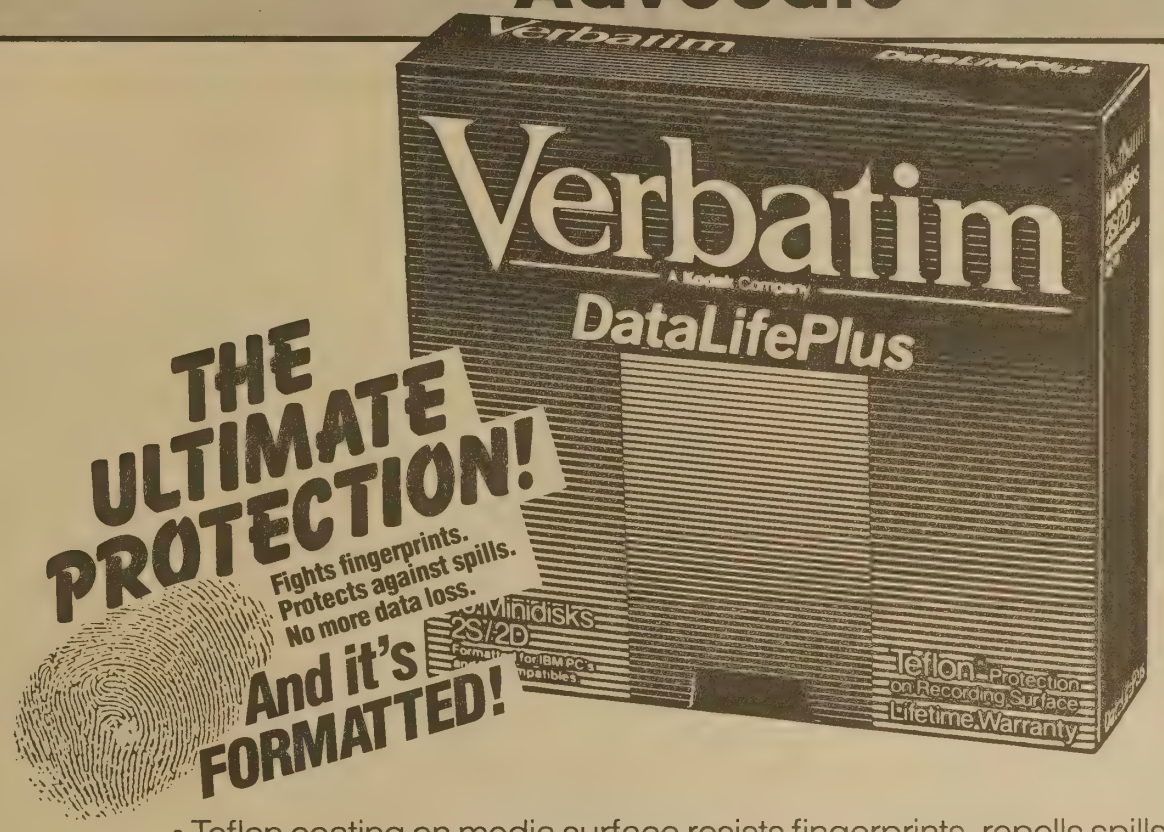
The Host Mode is significantly upgraded from 2.42. You can now set up a BBS system with graded access for callers, allowing privileged callers to access DOS and run programs over the phone while ordinary users can call the system to transfer files, read and leave messages for any other caller. The bugs which caused Host Mode to lock up on some PC compatibles in the last version have been eliminated. Sysops now have the same options in Host Mode that they would have running a FIDO system

Introducing.....

New DataLifePlus by Verbatim

With Teflon For Ultimate Protection

"As Tested By A Leading Consumer Advocate"



- Teflon coating on media surface resists fingerprints, repells spills.
- Data Hold II anti-static liner disperses electrical charges.
- 5¼" Double Sided, Double Density
- IBM Formatted to save time and the inconvenience of stopping work to format.
- *The first and only real protection against data loss due to common everyday accidents.*

NOW AVAILABLE FROM:

Santa Cruz
DATA DISTRIBUTING
1118-A Mission St.
Santa Cruz, CA 95060
(408) 425-5844

Santa Rosa
COLETT'S COMPUTER WAREHOUSE
211 Santa Rosa Ave.
Santa Rosa, CA 95404
(707) 579-1122

San Francisco
BEST PC SUPPLY, INC.
1203 Grandview Dr.
So. San Francisco, CA 94080
(415) 875-6888

Fremont
VALCOM COMPUTER CENTER
39149 Civic Center Dr.
Fremont, CA 94538
(415) 790-1388

BERKELEY
ASUC STORE CE DEPT.
UNIVERSITY OF CALIFORNIA
Bancroft at Telegraph
Berkeley, CA 94720
(415) 642-1429

Santa Clara
JEMINI ELECTRONICS
3400 De La Cruz Blvd., Suite T
Santa Clara, CA 95054
(408) 727-9986

DISTRIBUTED BY

NCC
NATIONAL COMPUTER CONSULTING INC.
Computer Supplies and Accessories
(415) 651-8933
41662 Christy Street
Fremont, CA 94538
(800) 245-3111
Fax (415) 656-1495

& MICROTIMES
PRESENT
THE FOLLOWING

COMPUTER SHOWS & SALES

► Sunday 4/17
Concord Computer Show & Sale
Concord Elks
3994 Willow Pass Road
I-680 to Willow Pass Road Exit. Turn Left.

New Show!

► Saturday 4/23
Vallejo Computer Show & Sale
Solano County Fairgrounds
Exposition Hall
Across from Marine World

► Saturday 4/30
Marin Computer Show & Sale
Marin Civic Center Exhibit Hall
N. San Pedro Road Exit off 101,
Left on Civic Center Drive

► Saturday & Sunday 5/14 & 15
Amiga - Commodore Computer Users Show & Sale
Santa Clara Convention Center
5001 Great America Parkway
Across from Great America

Special 2-Day Show!

► Saturday & Sunday 5/21 & 22
Oakland Computer Show & Sale
Special Atari Section!
Oakland Coliseum Exhibition Hall
Take Hwy 880 to Hegenberger Exit

TREMENDOUS SAVINGS

NEW PRODUCTS
CLOSE OUTS
OVER STOCKED
HARDWARE
SOFTWARE
BARGAIN PRICES
MAJOR BRAND NAMES

COMPATIBLES AND CLONES
DISCOUNTERS
PERIPHERALS
WHOLESALERS
ALL UNDER ONE ROOF!
SAVE!

► ALL SHOWS 10-5 PM
Admission $5.00 Kids 12 & under FREE

EAST-WEST COMPUTER SHOWS
(formerly Golden Gate Shows)
CALL FOR INFO: (415) 388-8893

(though an automatic 2 am mail transfer would have to be implemented by a script file).

Fans of amateur BBS systems will be pleased with the additional new transfer protocols. The menu also allows three external file protocols (like Chuck Forsberg's Z-MODEM) to be called alongside of the ones built in. I had trouble with *Desqview* and earlier versions of *Procomm*, but *Procomm Plus* is *Desqview* aware, and seems to run without a hitch. The automatic recognition of filenames for uploading and downloading didn't seem to work under *Desqview* for me, but all of the protocols I tried functioned correctly.

Telecomm seems to be one field in MS-DOS computing where the amateur and shareware programs are much more user-friendly than the giant corporate offerings. *Boyan* and *GT Powercomm* both have a little more ease of use on external protocols and manipulating dialing directories, but not much more. Neither includes anything like Host Mode. *Procomm Plus* also has a multitude of terminal emulations for mainframe communications, which are untested by this reviewer. For members of the business community new to the on-line experience, its learning curve should be better than that of *CrossTalk*, *Mirror* and *Bitcom*. (*Procomm Plus*, $75, from DataStorm Technologies, Inc., 1621 Towne Drive, Suite G, Columbia, MO 65202 314/474-8461.) □

Copyright © 1988 by Lenny Bailes. All rights reserved.

Procomm Help File

A patch program and patches for PROCOMM PLUS and PROCOMM PLUS TEST DRIVE are available in the download area. These are NOT required unless you are experiencing the problem addressed by the patch.

Here are some solutions to the most common PROCOMM PLUS and PROCOMM PLUS TEST DRIVE problems:

Setup/Installation Problems

Problem: The dialing directory doesn't dial.

Most common solutions:
1) Increase the transmit pacing. (from Terminal mode: ALT-S, G, G)
2) Configure the modem so that it doesn't force CD or DTR. PROCOMM PLUS behaves differently than ProComm 2.4.2 in that it will not send the initialization command if you are "connected." If your modem uses the software commands: &C1 and &D2, placing them in the initialization command is not enough. You must write these settings to the modems non-volatile RAM by typing "AT&C1&D2&W" from terminal mode (without quotes).

Problem: My 2.4.2 .CMD files won't work as a .ASP file.
Most common solutions:
1) ASPECT does not translate the same as 2.4.2 script language. To transmit control codes, you must enter the two character control sequence. For example, TRANSMIT "!" should be changed to TRANSMIT "^M" (unless you want to transmit an exclamation point). The tilde, <~>, is still translated into a half second pause. To transmit an ESC, use "^[".
2) If you are getting an error 9, make sure that commands aren't abbreviated. Abbreviations were ok in 2.4.2 but ASPECT requires the complete name.

Other Problems

Problem: My EGA display looks washed out or otherwise incorrect.
-or-
Problem: I have an EGA card. After a host I'm connected to sends a sequence to clear my screen, I seem to lose a few characters.
Cause: Many EGA cards don't properly support the set border color BIOS function (INT 10, function 10, subservice 1).
Solution: Apply the BORDER patch to your copy of the program.

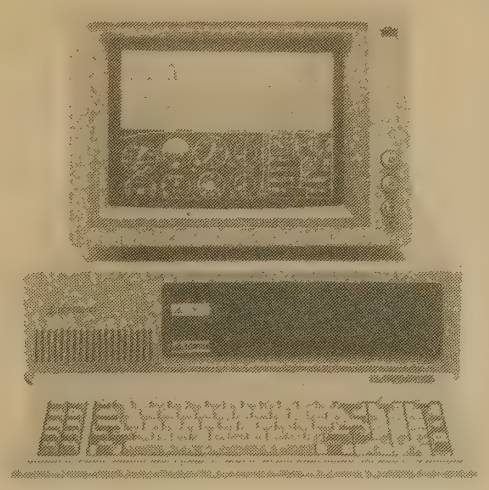
Problem: Kermit uploads appear to operate correctly until the very end at which point Kermit attempts to open an extra file.
Cause: Program bug.
Solution: Apply the KERMUP patch to your copy of the program.

Problem: When operating in half duplex and Enter is pressed, my cursor moves downward.
Cause: Program bug.
Solution: Apply the ENTER patch to your copy of the program.

Note: If you apply this patch, you cannot re-map the Enter key.

Problem: Unable to send two breaks within a very short time.
Cause: The status line message "** BREAK **" is being displayed.
Solution: Apply the BREAK patch to your copy of the program.
— From PALLADIN BBS, San Francisco

TOP VALUE
FROM TOPTEK



Runs Twice As Fast As IBM XT And Runs CP/M

IBM PC XT Compatible

Includes: 8 MHz (10 MHz optional) • 640K Motherboard Installed • 150W Power Supply • Floppy Disk Drive • Monochrome Graphic Card w/Port • Keyboard • Monitor

Only $499 Orig. $799

10 MHZ AT SYSTEM

Includes: 1 MB Motherboard 512K on Board • 200W Power Supply • HDC/FDC • Keyboard • 1.2 Mb Drive • FCC Approved • Monitor

Only $849 Orig. $1599

386 Also Available

PRINTERS & SUPPLIES

HP Laser Series II	$1699
Epson LX 800	199
Epson FX 86E	329
Epson FX 286E	459
Epson EX 1000	525
Epson LQ 800	449
Citizen 180D	185
Citizen MSP-10	285
Citizen MSP-15	349
Cables	7.95
Printer Stands	8.95
All printer ribbons available	Call

CARDS & BOARDS

640K Motherboard	$85
Turbo Motherboard 10MHz	89
AT Motherboard	269
Color Graphic Card	45
Mono Graphic Card w/Printer Port	55
EGA Card (Autoswitch)	129
Disk I/O Card	62

MISCELLANEOUS

200W Power Supply	75
150W Power Supply	55
Surge Protector	9.50
UPS (Uninteruptable Power Supply)	225
Tape Back Up	Call
EGA Monitor	349
Mono Monitor	85

SPECIAL

Star NX 1000 only $185 List $350

NEC P2200 (24 pin) only $354 List $599

Logitech C7 Mouse Only $67 List $99

MODEMS

Avatex 1200 Baud External	95
Everex 1200 Baud Modem (Int.)	89
Everex 2400 Baud Modem (Int.)	199
2400 Baud External Modem	215

HARD DISKS & CHIPS

4164	Call
41256	for
8087	the
80287	best
Seagate 4038/251	prices!

Multisync EGA Monitor

$459 List $799

15″ Monitor

Supports both color & mono graphics card

$129 List $249

REPAIR & UPGRADES

Fastest Turnaround
Lowest Rates
AT&T, IBM, & All Name Brand Products

SEMINARS

How To Build Your Own PC
Learn DOS Operation & Basic Troubleshooting Skills
$25 per person
Saturday at 10:00 AM

1520 Taraval St.
San Francisco, CA 94116
Telex: 379-9197

TOPTEK
MICRO CENTER INC.
(415) 564-3500

Office Hours
Mon-Fri: 10-7
Sat: 10-5

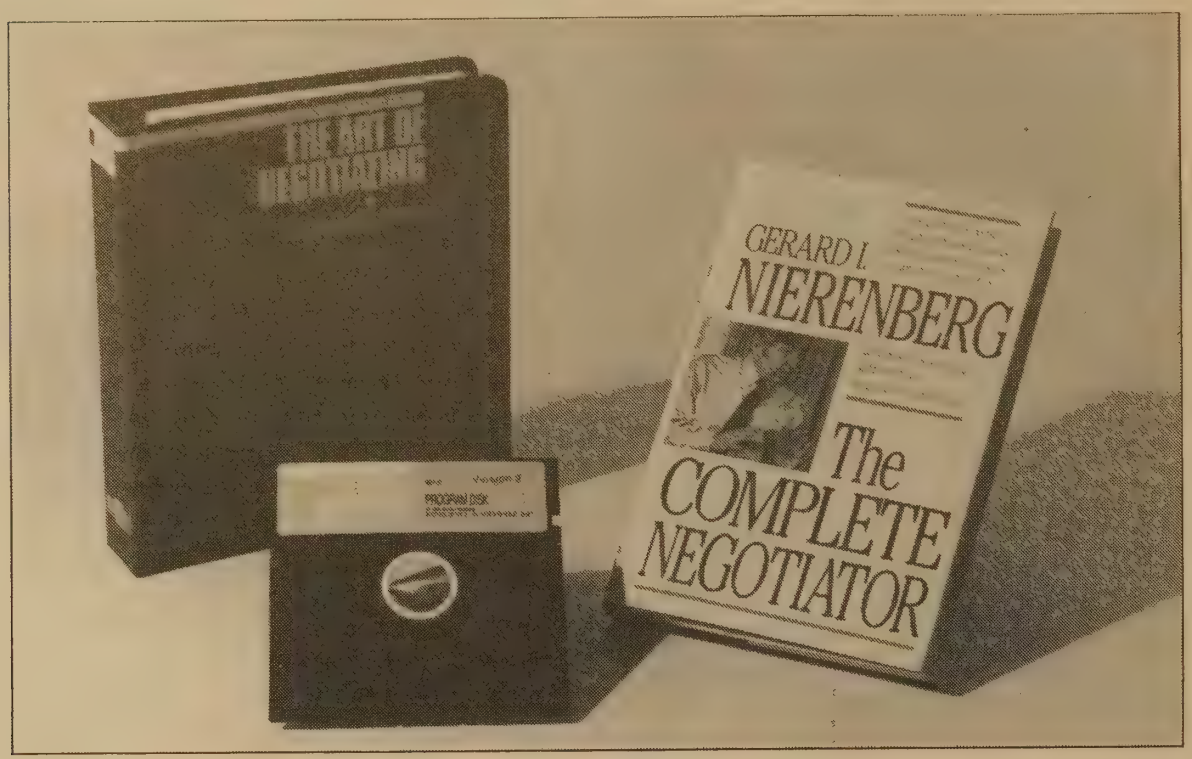
ON SITE SERVICE & PROFESSIONAL CONSULTING AVAILABLE • DEALER INQUIRIES WELCOME

IBM is a registered trademark of International Business Machines, Inc.

Price subject to change without notice

Software Tools For Negotiating: Role-Playing In The Real World

By Birrell Walsh



Serious questions that you might not have asked yourself when ironing out that contract are made evident when you use The Art Of Negotiating, negotiating software.

I have been a union steward for the last ten years. When we negotiate, we are setting the working conditions and the wages of our people for years to come. We need the best tools we can find.

We just finished a $10 million negotiation. We needed to write proposals for each of the nine units we represent, plus a Master agreement. We needed to keep a record of the negotiation and of the proposals as they developed. We needed to calculate all the economic consequences for our people and for the opposition. We needed to think about our goals and our strategies in advance. We found a piece of software for each purpose.

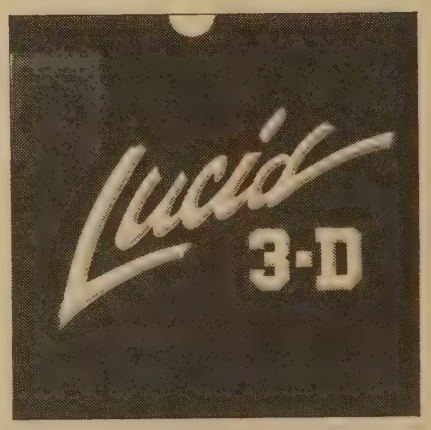
To keep track of the proposals, we used *PC Outline*. To compare wages and figure the costs of our proposals, we used *Lucid 3D*. And to ask ourselves about where we were going, and to think about our side and the other side, we used *The Art Of Negotiating*.

PC Outline, The Organizer

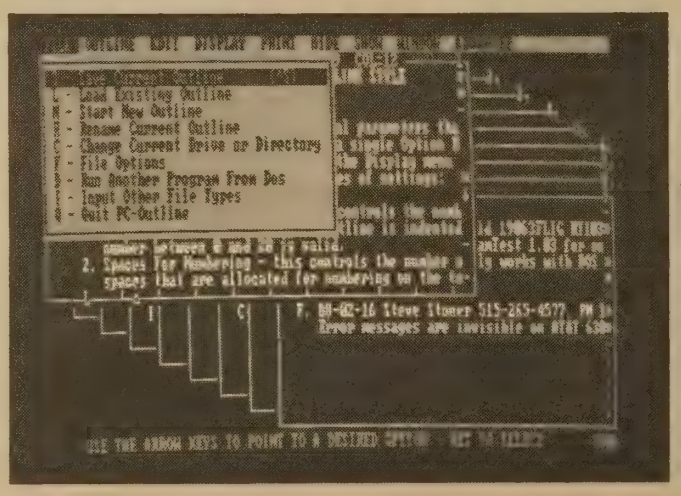
I came into the negotiation prejudiced in favor of the remarkable shareware product *PC Outline*.

For two years I have done all my writing in it. It is a simple, flexible, and easy-to-use word processor with all the commands that I need daily. Those commands are intuitive and easy to remember, a mixture of *WordStar*-like commands and others that *WordStar* does not have, but should. "Control-Y" erases a line, as in *WordStar*. Unlike classical *WordStar*, the "Begin" and "End" keys actually deliver you to the beginning and end of the line.

If you are a Lotus *1-2-3* user, you will like the "slash-commands." Typing "/" activates a menu bar at the top. Then a set of menus appears, which you choose among using arrow keys or by typing initials: "/EF" is the equivalent of choosing the edit menu ("E"), and then the "Find a string" ("F") choice. If you prefer a control-key command, you can use the control-key equivalents. "Control F", for instance, will have the same result as "/EF".



Lucid 3D is a RAM resident spreadsheet that lets you link your worksheets together.


L - Load Existing Outline
N - Start New Outline
R - Rename Current Outline
C - Change Current Drive or Directory
F - File Options
D - Run Another Program From Dos
I - Input Other File Types
Q - Quit PC-Outline

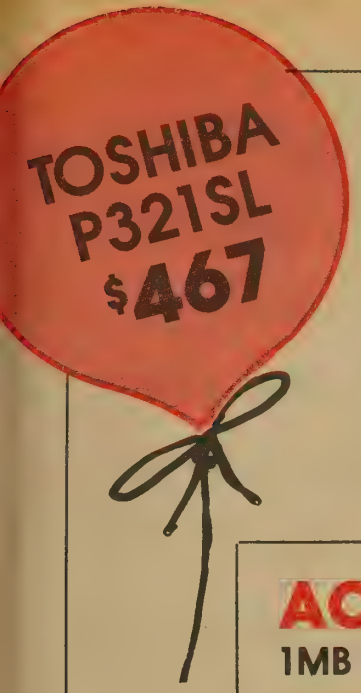
PC-Outline from Brown Bag Software is a shareware word processor that features powerful outlining capabilities.

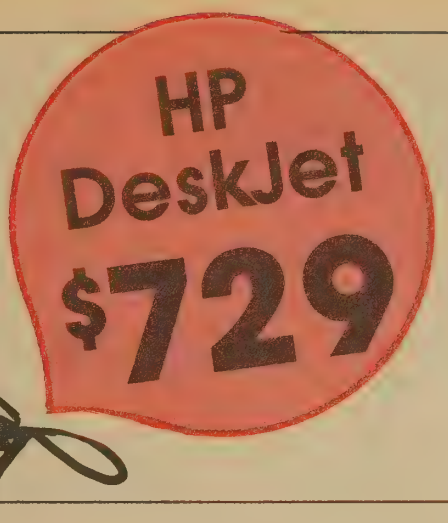
The makers of *PC Outline* wisely chose to make a word processor with outlining features rather than an outliner with word-processing features. The program allows you to enter text rapidly without any regard to structure. Later you can go through and segment the sections into outline form.

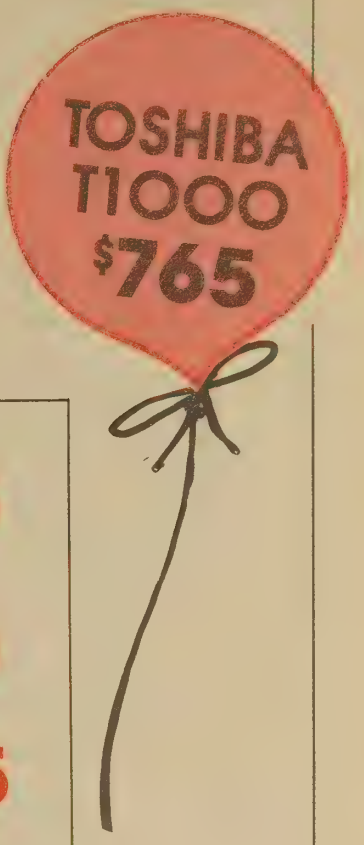
That is what we did with proposals for the ten different agreements that would make up our finished contract. Each set of proposals came from a different group of people, in different format, and referred to prior agreements. It was easiest to enter them into the outliner as text.

When we had done so, *PC Outline*'s strength as an outliner came to our assistance. The program can have up to nine windows open on the screen at once. We used these windows to move the proposals for each group into a separate outline. Within each outline, we punctuated the text into sections and subsections. We converted the proposals from English into legalese. We moved subsections around until they made the most sense.

At one point we had to move all of the proposals from one appendix into the master agreement. With a text processor this would have been







ACER 386
1MB RAM, 16 MHz, 1.2MB Fl., MS-DOS 3.2, Enh. K/B. $2395

AT COMPATIBLE
640K RAM, 1.2MB Fl., HD/ & Fl. Controller, Enh. K/B, Mono System (Landmark Speed Test 13.2 MHz). $899

AST 386—16/20 MHz
1MB RAM, 1.2MB Fl., 40 MB H.D., MS-DOS, Enh. K/B $4095

CALL FOR WYSE 286, COMPAQ 386/286, AST 286/386, IBM, LEADING EDGE (ALL MODELS) & OTHERS

Printers/Plotters/Digitizers

NEC P6/P2200	449/315
Okidata 292E/293E	409/535
Citizen 120D/MSP15	149/339
Toshiba P321SL/341SL	519/649
HP Laser Series II w/Toner	1655
Fujitsu DX/DL Series	Lowest
Epson LQ850/LQ1050	Lowest
APLS ALQ 224/324	Lowest
IBM Proprinter II XL/XL24	Lowest
Panasonic 1080i/1091	189/205
Okidata Laser 6	1275
Toshiba Page Laser 12	Lowest
NEC 890 w/PS	Lowest
AST Turbo Laser w/PS	Lowest
HP 7440	1039
HP/DEST/DATACOPY Scanner	Lowest
Houston Instruments/Ioline/Calcom/Enter/ Zeta Plotters	Lowest
Summa 12x12 Digitizers	369
HP Rams 1MB/2MB/4MB	Lowest
Bernoulli Box	Lowest
Brother	Lowest
Dynax/Fortis	Lowest
Ribbons & Accessories	Lowest

Call for others.

Monitors

NEC Multisync II/Plus	Lowest/910
Sony Multiscan	595
Amdek 410A/Samsung	139/79
Diamond Scan Multisync	495
PGS Ultrascan	Lowest
Xerox Full Page w/CC	Lowest
Paradise 480/Genoa VGA	169/239
Magnavox EGA/Multisync	379/495
Everex EGA/Nanao/Quimax 14"	Lowest

Call for other EGA Monitors and Adapters.

Tape Backups & Hard Disks

20MB Int/Ext	329/429
40MB Int/Ext	395/495
60MB Int/Ext	745/699
ST 251	Lowest
ST 225 Kit	259

Call for others.

Modems

Hayes 1200B Int/Ext	275/275
Hayes 2400B Int/Ext	409/409
Hayes 9600 Int/Ext	Lowest
Everex 1200B Int.	89
Everex 2400 Int/Ext	179/209
US Robotics	Lowest
UDS	Lowest
Ventel	Lowest
Ray Cal Vadic	Lowest
Migent Modem for Laptops	129

Call for others.

Miscellaneous

Power Supply XT/AT	59/99
AST Boards	Lowest
Intel Above Boards XT/AT/386	Lowest
Everex Boards	Lowest
MS Mouse/PS2	95
HP Laser 1MB Mem.	279
Logitech C7	79
Math Co-processors PC/AT/386/20	In Stock
Keytronics Keyboard	Lowest
Custom Cables	Lowest
5¼" Ext. Dr. Laptop	255
Accelerator Board PC/XT/386	Lowest
RAM Chips 64K/256K/128K/386	Lowest

Call for other items not listed.

Laptops

Zenith 181	1575
Zenith 183/10/183/20	2269/2595
Toshiba 3100/20	2995
Toshiba T1000	829
Toshiba T1200	Lowest
NEC Multispeed EL/HD.	1545/2396

Call for others.

Software

Ventura	549
Word Perfect 4.2	189
MS Word 4.0	205
Quattro	129
MS Excel	309
PC to Laptop Transfer Utility	59

Call for others.

Free delivery on all products in San Francisco/East Bay.* Free delivery/pickup and estimates on all repairs. Call in for our free catalog!

5835 Doyle Street
Suite 101
Emeryville, Ca 94608
(415) 658-1433
HOURS: M-F 9:00 A.M.-6:00 P.M.
SAT. 10:00 A.M.-5:00 P.M.
FAX (415) 658-7339

MICRO TECH
international

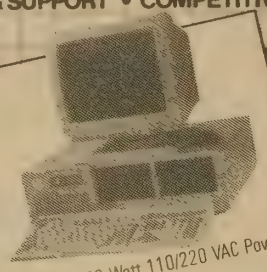
WYSE · AST RESEARCH INC. · AUTOCAD · ALLOY

605 Market Street
Suite 510
San Francisco, CA 94105
(415) 546-4188
HOURS: M-F 9:30 A.M.-5:30 P.M.
FAX (415) 546-5187

* Minimum $400 purchase. Prices subject to change and are good while supplies last. Prices are cash only. Add 5% for terms.

aborn COMPUTER

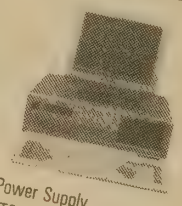
PROFESSIONAL SERVICE & SUPPORT • COMPETITIVE PRICES • REPAIR



TURBO XT SYSTEM
$449

- 100% IBM Compatible
- 4.77/10 MHz Switchable
- 256K RAM Expandable 640K
- 8087 Math Co-Processor Socket
- 8 Fully IBM Compatible Expansion Slots
- 360K Half Height Drive
- Floppy Controller Card
- Hercules Compatible w/Printer Port
- Hi-Resolution Amber Monitor
- 150 Watt 110/220 VAC Power Supply
- BTC Keyboard w/LED's Enlarged Return, Shift Key
- Heavy Duty Case w/Reset, Turbo, Keylock
- Runs all, MS-DOS, PC-DOS, Lotus, D BASEIII, AutoCAD, Wordstar, Flight Simulator, etc.
- Full One Year Warranty Parts and Labor

OPTIONS:
Same System w/2nd Drive $529
w/20 MB Seagate HD 729
Color System ..... ADD $185
EGA System ..... ADD $390



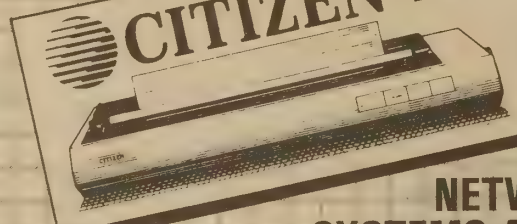
AT 286 SYSTEM
$829

- 100% IBM AT Compatible
- 512K RAM Expandable to 1 MB
- 6/13 MHz Switchable
- 80287 Math Co-Processor Socket
- 1.2 MB ½ Ht. Drive
- Master Floppy Controller Card
- Hercules Compatible w/Printer Port
- 8 Fully IBM Compatible Slots
- Hi-Resolution Amber Monitor
- 200/220 Watt 110/220 VAC Power Supply
- BTC 5339 Enhanced Keyboard w/LED's
- Heavy Duty, Lockable Case w/Reset, Turbo & LED's
- Run all MS-DOS, PC-DOS, Lotus, DBASE III, AutoCAD, Wordstar, Flight Simulator, etc...
- Full One Year Warranty Parts and Labor

OPTIONS:
Same System w/360K Drive $909
w/40 MB Seagate HD..... 1289

ALL SAMSUNG MONITORS & CITIZEN PRINTERS AT BEST PRICES

386 SYSTEM
$1899
Call For Info



NETWORK SYSTEMS AVAILABLE

BEST PRICES • BEST SUPPORT • BEST QUALITY
DEALER & CORPORATE INQUIRIES WELCOME

aborn COMPUTER

PROFESSIONAL SERVICE & SUPPORT • COMPETITIVE PRICES • REPAIR

3260 S. White Rd.
San Jose, CA 95148

(408) 270-5888
270-5889

PRICES SUBJECT TO CHANGE W/O NOTICE

At one point we had to move all of the proposals from one appendix into the master agreement. With a text processor this would have been the stuff of madness. With PC Outline, we opened the two windows, moved the proposals, and let the software handle the renumbering and reformatting.

the stuff of madness. With *PC Outline*, we opened the two windows, moved the proposals, and let the software handle the renumbering and reformatting. It provided hanging indents, so that the first line of each section extended further to the left than did other lines, with a one-key menu choice. We were pleased with the variety of formatting and printing devices in *PC Outline*. We needed to insert page-breaks, headers and footers into the document. *PC Outline* cooperated with its built-in macro facility. We did the work once, and then did it for each subsequent page with one keystroke. I wish I had had this program earlier in my negotiating life.

Do you have your own favorite word processor? No problem for *PC Outline*. It can be used in memory-resident mode, and in that mode can read from and write to the main program. It thus competes with (and to my mind vanquishes) both of Living Videotext's outliners — the memory resident *Ready!* and the old standby *Think Tank*.

PC Outline is shareware. If you like it you should register it. You will get a clean conscience, as well as a very useful manual and a set of DOS utilities thrown in for free. You can download a copy of *PC Outline* from the Brown Bag Software BBS at (408) 371-7654 or (212) 319-1260.

This program is good. I was once startled to hear the maker of a rival program confess that he used *PC Outline*. I can understand why, though — anyone who wants to keep track of text should use it. (*PC Outline*, $89.95. Brown Bag Software, 2155 South Bascom Avenue, Suite #114, Campbell CA 95008, in California 800/323-5335, nationally 800/523-0764.)

Lucid 3D

We needed a flexible and useful spreadsheet that would treat our wage information as the outliner treated our proposals — in modules.

Two years before, we had run a an entire negotiation on a Tandy 200 (with only 15K of available memory) and a remarkable product called Super ROM from the Personal Computing Support Group in Texas. PCSG had managed to stuff an exquisite spreadsheet (and a number of other functions) into a few kilobytes of ROM. When we heard that they had marketed a PC version, we were determined to try it out.

These Texans are the masters of putting a lot into a tiny space. *Lucid 3D*, their new DOS spreadsheet, fits into 89K of memory (289K if you use the help screens) and is intended to be memory resident! They have accomplished this by designing their spreadsheets to be modular. They call the program *Lucid 3D* because each spreadsheet can call on the results of others, to any depth, turning the program into a multi-dimensional linkage of data. Because only the current spreadsheet is in memory, you can have a very small memory demand. Because the spreadsheet can reach to the disk for current information from stored spreadsheets, you get the effect of a much larger sheet.

We made a separate spreadsheet for each of the nine different units. One master spreadsheet allowed us to insert new percent raises for each unit, then have the separate unit spreadsheet calculate what the impact of that raise would be on the individuals concerned. From those unit spreadsheets, the cost results were returned to the Master spreadsheet, so we could see what our proposals would cost.

Because we were negotiating a labor contract, the issue of comparable wages was crucial. Both sides advanced their theories of the value of the work done. The company suggested that the workers were comparable to comatose flatworms. We, the union, said the workers were more like superheroes. The two sides were conceptually far apart, and we

ARGO COMPUTERS

EVEREX FOR EXCELLENCE!

ALL EVEREX SYSTEMS ON SALE!!!

ARGO 80286 Monographics System

FULLY COMPATIBLE WITH IBM AT!!!
PRICE INCLUDES: 640KMB, RAM, 1.2MB, floppy/hard disk controller (WDC chipset) Everex Hercules compatible 80/132 columns hi-res. Monographics display card, printer port, AT style keyboard, clock/calendar, 8 expansion slots (2-8 bit, 6-16 bit). 96 hour burn-in & testing according to your specifications. Made in the U.S.A 1 year warranty (over 200 pages, hardbound manual & documentation). Excellent User References! (Choice of amber or black & white Amdek 410A monitor)

$999

Super ARGO 80286 EGA Color System

Same as Mono System except with NANAO ANALOG/TTL/CGA/HERC/PGA/VGA Graphics 8060S 14'' SUPER HI-RES EGA Color Monitor with EVEREX Enhancer auto-switch CGA/VGA/HERC/MONO/EGA/Color Graphics All-In-One Display card. All other specifications same as Mono System.

$1499

ARGO 386-16MHz

80386-16 running at 16/8MHz keyboard selectable clock speeds. Selectable wait state. Zero or One from the keyboard. 1MB DRAM, six 16-bit and two 8-bit expansion slots, combined floppy and hard disk controller, 101 keyboard, clock/calendar with battery backup, 192 Watt U/L power supply. Made in U.S.A.

Monographics Systems
(Amdek 410A monitor) / Evergraphics Plus.... **$1975**

ARGO 286-1700C System

80286-12 running at 8 and 12MHz, 0 wait state design, 1MB DRAM, four 16-bit and four 8-bit expansion slots, 1.2MB floppy, 101 keyboard, Western Digital floppy and hard disk controller, system clock/calendar with battery backup, 192 Watt U/L power supply. Made in U.S.A

EGA System (Nanao 8060s Flexscan monitor and Micro Enhancer Deluxe) / Auto Switch card..... **$1879**
Monographics System
(Amdek 410A / Evergraphics Plus)..... **$1489**

System Enhancements Special!

Following Enhancements/Add-ons are available for above system at very affordable prices:

10MHz ''1'' Wait State System..... **$189**
10MHz ''0'' Wait State System
(Includes 2 Serial/2 Parallel Ports)..... **$399**
20MB Seagate ½ Ht., HD..... **$249**
42MB Seagate ½ Ht., HD..... **$444**
Micro Enhancer Deluxe
800 x 600 Res. available. **Call**

Please visit us for all custom configurations and price quotes.

DEALERS: PLEASE CALL FOR SPECIAL BARE-BONE QUANTITY PRICE

THE PC UPGRADERS

Seagate 20MB ST-225 Kit
Seagate 30MB ST-238 Kit

KIT INCLUDES: FIRST QUALITY, BRAND NEW, ½ Ht., 65 MSec HD, Controller Card, Set of Cables, Installation Instructions Manual. Fully Formatted/Tested. 1 Year Warranty. FREE! DUAL HEAD (Phillips & Flat) RATCHET, REVERSIBLE TOLL FOR DO-IT-YOURSELF INSTALLATION. FACTORY SEALED BOXES!

$259/$279

Monitors Special

Nanao 8060s Flexscan..... $525
Amdek 410A Amber/B&W..... $145

Mouse and More

Mouse Systems Mouse..... $99
Logitech C7 Serial Mouse..... $72
IMSI Mouse with Dr. Halo..... $98
Enable..... $329
VP Planner (1,2,3 Super Clone)..... $29
Speedstore Universal Version..... $79
Everturbo/12MHz (New)..... $349

Everex Modems

Mini-Pocket Modem 1200B..... $119
Evercom Internal 1200Baud/2400Baud..... $79/$169
Evercom External 2400Baud..... $195

Turbo Card

Speed up your PC today!
80286-12MHz, upgrade your PC to run as fast as an IBM AT, 12MHz operation, 8K of high-speed SRAM cache, support for 80287 math coprocessor option, transparent operation switchable between 8088 and 80286 , hardware-switchable cache control

$349

Everex Video Boards

Evergraphics Plus..... $65
Evergraphics Deluxe..... $115
Micro/Enhancer Version with Parallel Port..... $139
Micro/Enhancer without Parallel Port..... $119
EVGA..... $260

Everex RAM Boards

Mini Magic..... $44
Maxi Magic EMS..... $66
Multifunction EMS..... $90
RAM 3000 (AT)..... $109
RAM 3000 Deluxe..... $99
Magic I/O (XT)..... $55
Magic I/O (AT)..... $55
Magic I..... $94

Everex Tape Backup

TEAC 40MB Int..... $495
TEAC 60MB Int..... $535
Archive 60MB Ext..... $649
Wangtec 60MB Int..... $689

15099 Hesperian Boulevard, San Leandro, CA 94578

Phone: Sales (415) 276-2211

All Other Calls (415) 276-2367 • FAX 415-276-2368

Hours:
Mon-Fri 10AM-5PM
Saturday 12PM-4PM
CLOSED SUNDAY

Terms:
Cash/Certified Funds Only
Personal/Company Checks/P.O.'s
Accepted with prior approval

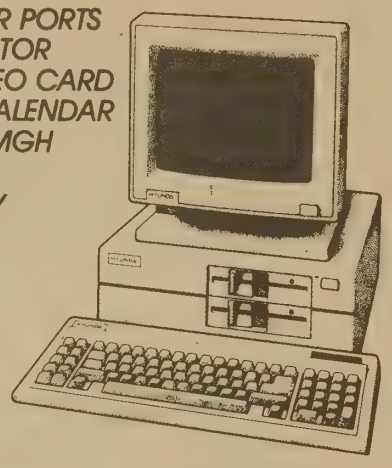
Spring Specials!

HYUNDAI

NOT JUST ON THE ROAD
BUT IN YOUR HOME OR BUSINESS

INCLUDES:

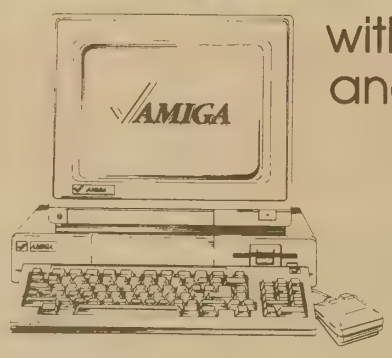
- ELECTRIC DESK
- SPELL CHECKER
- KEYWORKS
- GW BASIC
- MS DOS
- 640K
- SERIAL/PAR PORTS
- 12" MONITOR
- MULTI-VIDEO CARD
- CLOCK CALENDAR
- 4.7 TO 8 MGH
- 80 88-II
- 18 MONTH WARRANTY



$995

Bring this Ad in and Get a **FREE** "Learning DOS" Program with Purchase of System.

Amiga 500



with Color Monitor and 1 MB Memory

Sale **$1079** Reg. $1295

Amiga 2000 with Color Monitor
Sale $2195 Reg. $2395

- Motorola 68000, 16/32 bit CPU comes with Built-In Disk Drive, Keyboard, Mouse, Power cable
- Documentation and System Software
- IBM PC Compatible
- Standard 1 MB RAM expandable to 9 MB
- Multi-tasking Operating System
- 4 Voice 2 channel sound output with built-in speech
- 5 Amiga™ Expansion slots
- 4 IBM-PC® Expansion slots
- 2 special purpose Expansion slots

COME IN TO SEE THE AMIGA IN ACTION

ECX Computer Co. & Service Center
Largest Service Center in the Bay Area
2678 North Main St., Walnut Creek

OPEN
MON-SAT 9:00-6
SUNDAY 12-5
944-9277

needed some numbers to bridge the space between us.

With *Lucid 3D* we were able to turn philosophical arguments about job definitions into formulas for comparable wages. We used Bureau of Labor Statistics data and figures from comparable contracts to calculate fairly precisely what people were being offered in the market for doing analogous work. Of course, we still disagreed about whether the employees were flatworms or superheroes, but we were able to gain a substantial raise for one department by showing that even flatworms were getting more than they were.

Lucid 3D is a tidy little thing. I am continually stunned at the amount of function the Texans have stuffed into it. It has a macro facility of its own. The macros have conditional branching and can be nested. *Lucid 3D* also will show you an audit trail for each cell in a spreadsheet (though not between spreadsheets), highlighting the sources and dependents of any cell for you to catch inadvertent errors in formulae. Any cell can be converted into a notepad. This feature is like getting a Post-It notepad program bundled for free. We used it to keep notes about the sources for our figures. Those notes saved us more than once.

We found that *Lucid 3D* was not as fast as other spreadsheets, nor quite as graceful. That slight clunkiness was more than made up for by its modular design, which allowed us to have both it and *PC Outline* in memory at the same time. Negotiators working with portable computers "in enemy territory" would find they could use *PC Outline* and *Lucid 3D* simultaneously on a machine with 640K of memory and one floppy disk, and still have room left for a telecommunications program. (*Lucid 3D*, $149.00. Personal Computer Support Group, 11035 Harry Hines Blvd., Dallas, TX 75229, 800/544-4699.)

The Art Of Negotiating

The Art Of Negotiating's intention is to prepare you for a negotiation. That is a worthy goal. Many negotiators go into their first session believing they can operate from the seat of their pants. It just isn't so.

In addition to research of the sort we did on comparable wages, good negotiators need to get together with their team and do a lot of reflection. What are we trying to accomplish? What are our goals, and what are the priorities among our goals? Are they compatible with our long range values and purposes? What are our assets as we enter this process, and what are our deficits?

You need to ask the same questions about the people on the other side of the table. They too have a set of goals they need to accomplish. They have constraints and advantages, strengths and weaknesses.

The Art Of Negotiating is intended to help you with this reflection. It asks you a number of questions about the negotiation, about you and about your opponents. It records the answers for you. When you are done, it gives you a printed report.

The Art Of Negotiating covers Subject Matter, Objectives, Issues/Positions, Needs/Gambits, Climates, Strategies, and Agenda.

Each of these topics has sub-headings. If you choose the "Subject Matter" heading, you get a submenu that will lead to questions about:

Step 1 — Your side.
Step 2 — The other side.
Step 3 — What is the negotiation about?
Step 4 — Any other important parties?

Questions about Needs and Gambits would give:

Step 1 — Levels of approach.
Step 2 — Needs of the other side.
Step 3 — Working FOR or AGAINST needs to make gambits.
Step 4 — Rate your top gambits.

While I used this program extensively in preparation for the negotiation, I found that the others on my team were just not that interested in it. It was like needed homework that they did not want to do.

They were, however, willing to discuss all the issues that the program brought up. I finally decided that the problem lay with *The Art Of Negotiating*, as a program. It was not a highly appealing package to work with. Well organized, well-programmed, easy to understand — yet I did not approach it with any joy. It had a rather didactic quality that I found unrewarding. It used a theoretical approach it borrowed from Abraham Maslow, and that approach did not generate the most interesting questions possible.

But — and it is a big "but," too — I think that a lot of the reason we finally succeeded was the work we did on the questions which *The Art Of Negotiating* raised for us. It forced us to look at the negotiation from our opponents' point of view. It forced us to identify the points of common interest which in the end formed the basis of our agreement. It helped us to perceive how our opponent was vulnerable and how our opponent was strong — and it led us to answer the same questions about ourselves. In that sense it was invaluable.

The problem is that *The Art Of Negotiating* is stuffy. If someone manages to do something similar with a light touch and a more open theoretical approach, I predict the program will be a tremendous hit. In the meantime, it is worth slogging through *The Art Of Negotiating*. Alas, it is a slog. But I think it served us well, for all that. (*The Art Of Negotiating*, $195.00. Experience in Software, Inc., 2039 Shattuck Avenue, Suite 401, Berkeley, CA 94704, 415/644-0694.) □

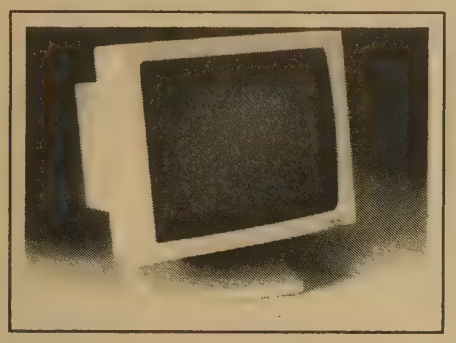
Copyright © 1988 by Birrell Walsh. All rights reserved.

MONITERM

The Technological Leader in Monochrome and Color Display Systems

NEW VIKING 2400 (24″) MONOCHROME MONITOR

Big Screens for PCs and Macintoshes



Viking 1

▶ **Viking 1 - Desktop Publishing**

The 19″ Viking 1 monitor, for the IBM PC, XT, AT, PS-2, compatibles and Apple Macintosh SE and II, turns your computer into a powerful Desktop Workstation with a full two pages of text, high resolution graphics, and CAD drawings displayed on one screen. A true "What You See Is What You Get" (WYSIWYG) format allows you to review and edit your working document on the screen, ***before*** you print. The graphics controller allows you to execute functions exceedingly fast, for increased productivity. A system that improves every aspect of monitor performance, and provides cost-justifying benefits, over and over again.

"IBM," "PC," "AT" and "XT" are registered trademarks of International Business Machines, Inc.

Viking 10

▶ **Viking 10 - High Resolution CAD/CAM**

The Viking 10 color monitor, for IBM PC, XT, AT compatibles and Apple Macintosh II is a vital productivity tool for the new generation of personal workstation users. A 1024x768 display format, refreshed at 60 Hz (flicker-free), produces large screen, life-like images on a 19″ light-weight monitor. Using the Hitachi ACRTC chip on the Viking controller board provides high speed graphics control. Efficient character mode operations and sophisticated graphics functions are combined in the same program.

Apple, Macintosh SE, Macintosh II are trademarks of Apple Computer, Inc.

Cypress Distributing Company

560 Lincoln Avenue
San Jose, CA 95126
(408) 297-9800

22186 Rim Pointe
El Toro, CA 92630
(714) 770-7244

2670 Truxel Road
Sacramento, CA 95833
(916) 646-1955

Qumax Emerson Century Data Systems
Packard Bell Personal Computer Products
Panasonic Seikosha C. Itoh Fujitsu Star Micronics
Mitsubishi Rutishauser Canon

LASERWRITER OWNERS

Make an extra

$10⁰⁰ !!! **$20⁰⁰ !!!** **$30⁰⁰ !!!**

Give us your old Laser Toner Cartridge & we'll give you

$10⁰⁰

for each cartridge & felt wiper

New Toner Cartridge	Re-Manufactured Cartridge
Just **$79⁹⁵** with exchange & your old wiper blade (without exchange $99⁹⁵)	Just **$59⁹⁵** with exchange & your old wiper blade

Software for Le$$
950 Taraval at 20th
San Francisco, CA
(415) 753-1066

SATURDAY
APRIL 23

COMPUTER BARGAIN SHOW

BAY AREA
Computer Swap

EVERY ITEM ON DISPLAY IS AVAILABLE FOR IMMEDIATE PURCHASE AT BARGAIN PRICES

Alameda County Fairgrounds
Pleasanton, CA

DIRECTIONS: From Hwy. 680 Exit Bernal Ave East. Left at Valley Ave.

Admission $5 Children Under 12 FREE SAT. 10 a.m. - 4 p.m. For Info. Call in CA 800-433-7469

A MICROSHOWS PRODUCTION

Boeing Calc Version 4

Spreadsheet Functions In The Third Dimension

By Steve Guttman

Welcome to 3-D — and you don't even need glasses!

Boeing Calc, by Boeing Computer Services, is a 3-D spreadsheet that extends the capabilities of a normal spreadsheet into the third dimension. If *1-2-3* could be called a piece of electronic ledger paper, then *Boeing Calc* is a ledger book.

Let's face it. There are a lot of spreadsheets out there. And the problem with so many of these programs is not so much their functionality. It's that they're *1-2-3* after-rans. You know, the Terry Malloy (from *On The Waterfront*) syndrome — "I could have been somebody. I could have been a contender, instead of a bum, which is what I am. If only I had gotten there before Lotus." *Boeing Calc*, on the other hand, is one of the few programs that goes *1-2-3* one better.

Why? It's that third dimension.

The advantages of the 3-D approach are obvious — it's simply a more natural way of solving problems. Most real problems involve interactions between related entities — a balance sheet, income statement and cash flows, for example. With a typical spreadsheet you're forced to either use different worksheets for each set of calculations, in which case you have to write elaborate macros to transfer information. Or you can banish some of your calcs to the outer reaches of your spreadsheet — you know, cells HK2020 to IL3200, which is Never Never Land in my book. What you really want is the ability to quickly move between subproblems, and let the spreadsheet take care of the interactions.

Boeing Calc meets this challenge by carrying through the electronic page/book analogy. In fact, files are called workpads, not worksheets. The F4 key toggles the user between page and pad modes. In page mode the PGUP and PGDN keys moves the cursor from screen to screen within the same worksheet. However, in pad mode, PGUP and PGDN moves you through the third dimension, traveling forward or reversing into different worksheets or pages.

Thus, cell addresses must contain row, column and page information. They are prefixed by the current page number — "2D4" refers to cell D4 on page 2. And lest you worry about running into memory limitations on workpad size, *Boeing Calc* implements a virtual memory scheme (swapping data to disk when memory fills) allowing spreadsheets as large as 16,000 rows, 16,000 columns, and 16,000 pages. At over four trillion individual cells, that slightly tops the *1-2-3* R2 limit of 256 x 8192.

The *Boeing Calc* screen will be hauntingly familiar to *1-2-3* aficionados. It's basically your old friend (or nemesis). The command structure, the top-line menus, the cell format, and mode indicator — all in the Lotus style.

While menus are quite similar to *1-2-3*'s, they are not keystroke-for-keystroke identical. For example, the *1-2-3* File-Erase (/FR) is File-Create (/FC) in *Boeing Calc*, and the *1-2-3* Range-Label (/RL) becomes Range-Align (/RA). This shouldn't be any cause for confusion. The differences are, for the most part, self-explanatory, and if they aren't, *Boeing Calc* has reasonably good context-sensitive help.

Hottest 386 Supersystem on the Market!*

EVEREX System 386/20

COMPUTER SYSTEMS DIVISION

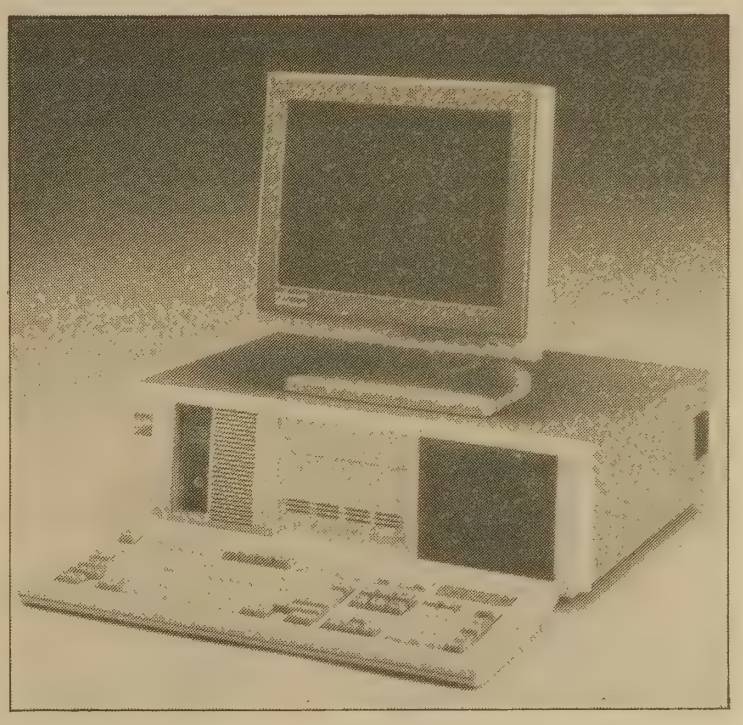
Brand-New from EVEREX COMPUTER SYSTEMS DIVISION

Establishing A New PC Performance Standard!

The Everex System 386/20 offers unexceeded performance in an 80386 based personal computer. Designed as a business or personal workstation, the Everex 386 delivers a high-performance environment for current-generation AT-compatible software while providing a platform for future operating systems, including OS/2, XENIX 386 and UNIX 386. Advanced features include Everex's Advanced Memory Management Architecture (AMMA) and a very fast 1:1 interleave hard disk controller. An eight digit real-time display continuously updates system and drive status.

Advanced Features:

- Can be factory configured with up to 8 megabytes (1 MB is standard) of dynamic RAM and a write-back cache of very high speed 25ns static RAM.
- Offers 8 expansion slots. Six 16-bit slots and two 8-bit slots.
- One of the 8-bit slots has also been designed to double as a 32-bit memory expansion slot.
- 20 MHz Intel 80386 microprocessor.
- Zero wait-state operation.
- Advanced Memory Management Architecture™ with large "write-back" RAM cache.
- High performance 1:1 interleave hard disk controller.
- Real-time alpha-numeric status display.
- Front access to 5 mass storage devices.
- One-year on-site maintenance contract included.



Check Out These Benchmark Comparisons:

SYSTEM	MIPS	LAND MARK	NORTON 3.1	NORTON (ADV)
EVEREX 386-20/0	**2.90**	**35.00**	**23.00**	**24.30**
COMPAQ 386/20	2.89	34.50	18.70	24.20
WYSE 386-16	2.11	20.60	15.30	17.60
ACER 386-16	2.08	20.60	10.30	16.20
COMPAQ 386-16	2.03	20.00	15.30	17.60
IBM MODEL 80	2.01	20.00	15.30	17.60
COMPAQ 286-12	1.41	11.70	10.30	11.50
AST PREMIUM 286-10	1.40	13.00	11.50	11.10
IBM MODEL 50/60-10	1.20	9.80	8.40	9.80
IBM AT 286-8	1.02	8.00	N/A	7.70

Available Only From Authorized EVEREX COMPUTER SYSTEMS DIVISION Computer Systems Division Dealers.

*"An incredible powerhouse, it blew away everything, including COMPAQ's new 20MHz, on all the tests. It's well-built and we just can't say enough good things about it. If raw power is what you want, this is the first machine to consider . . . performance was unbelievable . . . this is one heck of a computer and the one (we) most wanted to keep."
Computer Currents, March 8, 1988

"The absolute fastest I've seen is the Everex 386 - the one to watch . . . It's slick and state-of-the-art . . . The machine clocks out faster than any 20-MHz 386 I've seen thus far . . . Hot stuff."
John C. Dvorak, *PC Magazine,* April 12, 1988

Micro Strategies is Your #1 Source for:

- Full Line of Everex Peripheral Products including 386/20, 386/16, 286/16 and 286/12
- Local Area Networks
- Business Leasing
- Superior After-Sale Support and Service
- Specialized Consulting & Training

Made in the USA

Everex Computer System Computers are designed and manufactured in the US to provide superior performance and reliability. All Everex systems are completely burned-in and factory-tested before shipment.

MICRO STRATEGIES, INC.

23 Years in the Industry

Authorized Everex Computer Systems Dealer

1050 Marina Village Parkway
Suite 102
Alameda, CA 94501
(415) 865-6880

The main menu choices are the same as *1-2-3*'s with one addition — a curious item called "Environment" which lets you set the currency symbol, the screen edge color, and save or use keystrokes in a macro file. "Grab-Bag" might have been more apropos. And while *Boeing Calc* will import and export files in a variety of formats including ASCII, *1-2-3* R1, *1-2-3* R2 and *Symphony*, it will not import *1-2-3* macros. You can import portions or a whole worksheet into single or multiple *Boeing Calc* pages.

Boeing Calc handles the trauma of moving from two to three dimensions almost seamlessly. It feels natural. Occasionally you're prompted to enter a page range as well as a cell range, but for the most part, you'll forget about that third dimension — until you need it.

One of the nicest features of this program is a variation on *1-2-3*'s "point" mode. The standard "point" mode allows the user to highlight a range of contiguous cells as input to a formula. This can save you from going blind trying to read and type cell addresses. With *Boeing Calc*'s enhanced "point" mode (activated by the F10 key), cells need not be contiguous. Just move the cursor to a cell of interest, and hit an arithmetic operator (+, -, *, ^, /) — the cell address and operator will automatically appear in the formula. Hit ENTER to complete the formula input. But use caution — this option can be habit-forming!

The advantages of the 3-D approach are obvious — it's simply a more natural way of solving problems. Most real problems involve interactions between related entities — a balance sheet, income statement and cash flows, for example.

Another simple yet elegant feature of *Boeing Calc* is its ability to figure out when you're typing cell addresses and formulas. You don't have to worry about prefixing a cell reference by a "+", or a formula by "@." *Boeing Calc* does it for you.

And you want macros? We got macros. *Boeing Calc* includes, not only workpad macros, but also file macros. The workpad macros are created like *1-2-3*'s macros — by defining range names that start with the "/" key. They're activated by hitting an alt-letter combination. The program includes a robust set of scientific, logical, financial and macro-specific functions.

Additionally, the file-macro option lets you save and play back a series of keystrokes in a disk file. The macro files are in ASCII format, so they can be modified with any standard text editor. However, it's such a pain to branch back and forth to DOS to edit these files that I think this function will be used mainly to save keystrokes for later import to workpad macros, or to store already debugged macros.

If this package has one Achilles heel, it would have to be the omission of graphics. *Boeing Calc* has a "Graph" option on the main menu, but disappointingly, that choice only becomes functional when *Boeing Graph* also resides on disk. *Boeing Graph* is a separate 3-D graphics package with reputedly impressive abilities. However, the $350 list price of that program almost doubles your spreadsheet investment. Since graphics are so important for effective presentations, it would have been nice if BCS had at least included some rudimentary graphics abilities.

While the manual will never make the best-seller list, it's reasonably well written and includes a convenient quick reference guide. The package also includes two tutorials. The first is an impressive on-line overview of the program, features, and the standard "what is a spreadsheet" spiel. The hands-on tutorial is a two-lesson exercise in setting up a workpad in *Boeing Calc* and exploring that third dimension. Although the lessons have to be printed from a disk file, they'll be quite useful to the 3-D novice.

In short, *Boeing Calc* is an impressive, well organized, and well realized spreadsheet. While its capabilities are skewed towards the needs of power users, its sensible implementation of 3-D also makes it a good choice for armchair analysts. Current *1-2-3* users and spreadsheet novices will find the package easy to use. Its only noticeable deficiency is the lack of internal graphics, which currently can only be remedied by purchase of *Boeing Graph*. (*Boeing Calc*'s suggested retail price is $395. For more information, call Boeing Computer Services, 800/368-4555.)

Streets On A Disk
Business and Personal Mapping System

STREETS offers you much more than any ordinary map. By merely pointing with a mouse or cursor keys, you can use your computer to plan your next trip. **STREETS** will automatically display and print maps, travel directions, calculate distance, mileage, travel time, and fuel requirements.

With **STREETS**, you can display all of your business contacts on the map along with name, address, phone number or any text information.

Designed for use on a PC, AT, 386, and compatibles, **STREETS** is ideal for salesmen, dispatchers, travel agents, and motorists everywhere.

ONLY $99.95 (including a choice of city maps)
Add $5.00 shipping and handling. California residents add 6% tax.
Call (805) 583-1029
Klynas Engineering, Box 499, Simi Valley, CA 93062

13 MHz 286

13/6 MHz Motherboard
512K RAM Expandable to 1MB
200 Watt Power Supply
Floppy Controller
1.2MB Floppy Drive (Japan Made)
AT-Type Keyboard
Hi-Res Monographics/Printer Card
Mono Amber Monitor (720x348)
One-year Warranty

Complete System
$869

Model RE5154

EGA/CGA Color Monitor
- High-Resolution EGA/CGA 14-Inch, Non-Glare Display
- TTL Video Input
- 64 Display Colors
- 15-Month Warranty on Labor, 24 Months on Parts
- Tilt/Swivel Base

$369
Dealer Inquiries Welcome.

Hex Computers
16392 E. 14th St
(Corner of 14th St & 164 Ave)
San Leandro, CA 94578
Tel (415) 276-9080

Sales & Service
Consulting, Training
Custom Software
Accessories, Furniture

MITSUBISHI ELECTRONICS

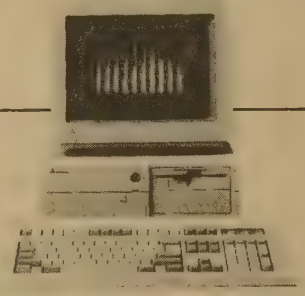
MP 286 and MP 386

MP 286
- Small 15 x 15" footprint
- 80286-based microprocessor
- MS-DOS® compatible
- Assembled in the U.S.A.
- 6 slots for expandability
- Multiple system configurations
- 12 MHz, 640K RAM, serial and parallel ports
- One-year warranty

Call for Price

MP 386
- Intel 83086 processor at 16 MHz
- OS/2 ready, System Cache
- 10 expansion slots, 2-32 bit
- Multiple system configurations
- Supports mast Xenix® based applications
- 1 MB memory, serial and parallel ports
- 101 sculpted keyboard
- One-year warranty

Call for Price



Cypress Distributing Company

560 Lincoln Avenue
San Jose, CA 95126
(408) 297-9800

22186 Rim Pointe
El Torro, CA 92630
(714) 770-7244

2670 Truxel Road
Sacramento, CA 95833
(916) 646-1955

10 Net Datasouth Indtech Ampex
C. Itoh Century Data Systems Packard Bell
Personal Computer Products Panasonic Seikosha
Moniterm Star Micronics Rutishauser Canon Fujitsu

HSC Halted specialties co.

"Since 1963"

- Electronic Components & Test Equip
- Prototyping & Hobby Supplies
- Computers, Lasers & Optics

DISPLAY PAGING RECEIVER

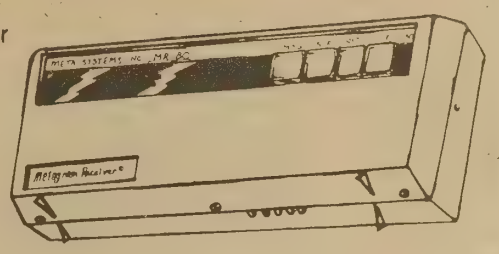
Designed for use in a nation-wide paging system

- Dual conv. superhet 450 MHz crystal controlled receiver module (plug in module!)
- Twenty character alpha-numeric LED display (ASCII Encoded, ANSI character set)
- RCA CDP 1802 Processor based display/mode controller Piezoelectric "beeper" unit

APPLICATIONS:

Receiver module may be removed for other uses...
Receiver could be recrystaled for Ham Radio Use...
Possible to use for original application on Ham Bands...
Terrific source of parts...

UNITS ARE COMPLETE BUT UNTESTED & SOLD "AS IS"



$19.95 INCLUDING SHIPPING

PC-LabCard FOR IBM AT/XT

Multi-Lab Card..... $295
(12 bit) A/D + D/A + DIO + Counter

Super-Lab Card..... $495
(14 bit) A/D + D/A + DIO + Counter

Digital I/O & Counter Card..... $175

Relay Actuator & Isolated D/I Card.. $239

Prototype Development Card.. $74

30% OFF DISCOUNT COUPON 30% OFF

EXPERIMENTERS DELIGHT

GOOD FOR 30% DISCOUNT

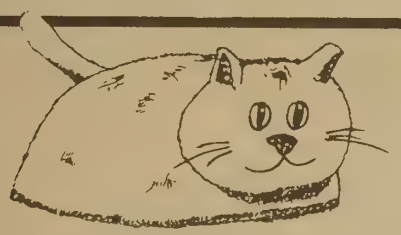
ON SELECTED COMPONENTS

NOT VALID FOR MAIL ORDERS — MT588 — EXPIRES MAY 31, 1988

AT/XT 3-SLOT MOTHER BOARD EXTENDER

- Fused Extender Card
- 1 16-Bit Slot
- 2 8-Bit Slots
- Test Points for all bus points
- Power connector
- Cables included

$89.95



ROBO-CAT

ROBOTICS HOBBYIST SPECIAL!

These toy robot cats are purr-fect for the robot hobbyist. There are two models to choose from that originally retailed from $40 to $50. They are units that were returned to the manufacturer with minor defects so they are sold "As-Is". We suggest buying two to insure repairability.

Features:

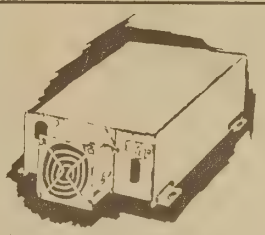
Model A
* Dual DC Motor Drive Assm. W/ Gear Reduction, Magnetic Clutch, and IR Indexer.
* Dual Microphones for Clap Command Recognition.
* Infrared Emitters and Detector.
* 11" Base W/ 3 1/2" Diameter Wheels.
* Battery Holder (6 "D" Cells).
* 8049 CPU Board and motor driver W/ 6ea Power Transistors.
* Light Sensing Photo Resistor.
* Green LED Blinking Eyes.
* Speaker.

$79.95

Model B
* Two Separate DC Motors W/ Gear Reduction.
* Dual Microphones for Clap Recognition.
* 8" Base W/ 2" Diameter Wheels.
* Battery Holder (4 "C" Cells).
* Red LED Blinking Eyes.
* Speaker.

$49.95

*HALTED SPECIALTIES offers its customers Unique "SUPERMARKET STYLE" shopping for ANY and ALL ELECTRONIC NEEDS. We stock literally THOUSANDS of parts—from the newest IC's to some of the first transistors. ALSO, for the electronic enthusiast, we carry a full line of computer accessories, test equipment, tools, R+D supplies and much more! **PLEASE CALL OR VISIT ONE OF OUR THREE RETAIL STORES TODAY!***

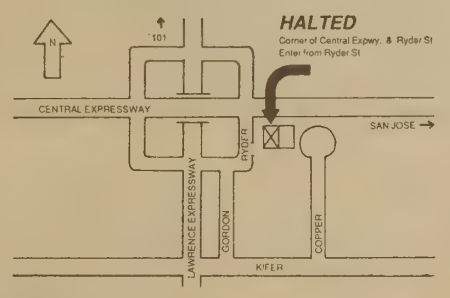


PROJECT BOX W/FAN

- 3 1/2" x 7 1/2" x 9"
- 3" Fan
- Perfect for mounting power supplies or building projects
- Black Wrinkle Finish

$9.95 W/Fan

$1.95 W/O Fan



NEW

RS-232 BREAK OUT BOX

- SWITCHABLE LINES
- LED INDICATORS
- PATCH TERMINALS & JUMPERS
- COMPACT SIZE

$31.95

3 CONVENIENT LOCATIONS:

HSC Electronic Supply of Santa Rosa
6819 S. Santa Rosa Ave
Cotati, CA
(707) 792-2277

HSC Electronic Supply
5549 Hemlock St
Sacramento, CA
(916) 338-2545

3060 COPPER RD., SANTA CLARA, CA 95051

WE SHIP C.O.D.

MAIL ORDERS

Store Hours:
Mon-Fri 8:00-7:00
Saturday 9:00-5:00

Call NOW! (408)732-1573

AMERICAN EXPRESS · MasterCard · VISA

TERMS Minimum order $10.00. California residents add 7% sales tax. Prepaid orders sent freight C.O.D. or call for charges. shipping will be added to credit card and C.O.D. orders. Prepaid orders over $100.00 use money order or certified check. Please do not send cash. Some items limited to stock on hand. Prices subject to change.

Quattro

Performance And Graphics Power You Don't Need A 386 To Use

By Woody Liswood

Quattro is one of three new spreadsheets which have helped to fragment and disembowel the spreadsheet marketplace. *Quattro*, *Lucid 3D* and *Excel* are all attracting raves and winning market share from *Lotus 1-2-3* (and, incidentally, from *VP-Planner*).

While I have plenty of company in thinking that *Excel* is the best spreadsheet currently available, *Excel* has some drawbacks — notably that it only runs under *Windows 2* or *-386*, requires at least 1.5MB of memory and runs best in the 386 environment. So to take advantage of its power and features you'll probably have to upgrade your hardware.

Lucid 3D is an excellent full-featured spreadsheet, but it's a TSR or memory resident program with limited capacity for a single spreadsheet. It does allow the chaining of spreadsheets so that a single cell in one spreadsheet refers to an entire spreadsheet on a lower level. *Lucid* also makes no attempt at imitating the Lotus look and feel and has its own methodology of menus.

Quattro, the subject of this review, is a *1-2-3* clone, in that you have the option of setting up a *Lotus 1-2-3* menu structure. You can install it permanently during the installation process or switch to it after booting the program.

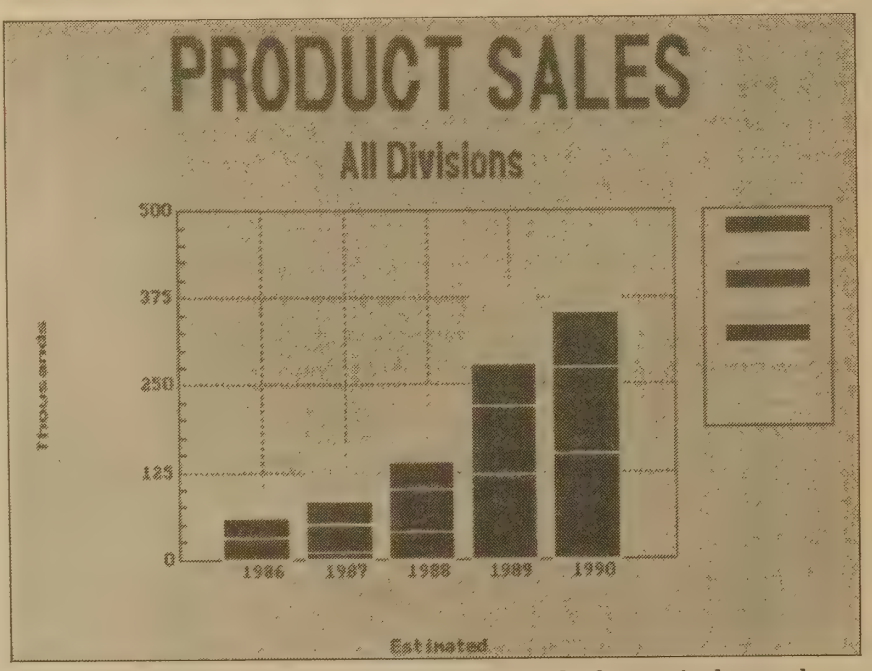
Why Quattro?

So is *Quattro* better than Lotus *1-2-3*? *Yes*. It is faster, has more functionality, has better graphics, and is generally the top of the line for the type of spreadsheet which started with *VisiCalc* on the Apple II.

Should you switch? That's a more difficult question. If you are just buying your first spreadsheet, and do not have the hardware to go the *Windows/Excel* route, then *Quattro* is the best purchase you can make.

However, if you are part of a big corporation, switching means that at some point your spreadsheets will be incompatible with those of the *1-2-3* users. *Lotus* also has a myriad of add-in products which give it additional features and functionality. On the other hand, if you know *1-2-3*, you can easily learn *Quattro* by installing the *1-2-3* menu structure and then work your way into the additional features. (And, just to confuse the issue, the most cost-effective spreadsheet may be *VP-Planner*, a pure *Lotus 1-2-3* clone with added functionality in the data management area and better pricing than either *1-2-3* or *Quattro*).

So is Quattro better than Lotus 1-2-3? Yes. It is faster, has more functionality, has better graphics, and is generally the top of the line for the type of spreadsheet which started with VisiCalc on the Apple II.



Quattro allows the user to easily customize graphs for particular needs.

Quattro reads and writes *1-2-3* files. The major differences between *1-2-3* and *Quattro* start with ease of use. *Quattro* is not copy protected. It comes with three manuals: a user's guide, a reference guide, and a Getting Started guide. It also comes on both 5-1/4" and 3-1/2" 730K disks.

Quattro is smarter than *1-2-3*. It automatically detects the type of system you are using and works correctly. The installation is simple. Create a subdirectory. Copy the files. Run the program. Select your printer.

Quattro is faster than *1-2-3* because it uses what is called "minimal recalculation." *Quattro* only recalculates the cells and formulas which have changed, rather than the entire worksheet.

Although the documentation states that *Lotus* macros run directly, I found that only *some Lotus* macros run without modification. One of my major spreadsheets contains long and involved macros, and did not run (and did run under *VP-Planner*); if macros are important to your operation and you don't want to have to redo them, you should test your spreadsheet with *Quattro* before purchasing the program. On the other hand, there is a built-in macro recorder, as well as a transcript recorder which records your keystrokes and helps in significantly reducing the time you must spend to create and test your macros. You can also have an "unlimited" number of macros rather than the 27 *Lotus* offers.

Quattro also has excellent support. If you are a CompuServe (CIS) member, G BORLAND will take you to technical support to help you with many of your problems. (You may be a bit daunted by some of the bug reports and fixes; as with most brand-new software, there are glitches, idiosyncrasies and bugs which only appear through continued use. Many of the reported problems revolve around printers and printer control. If you have an off-brand printer, it may be worthwhile to test *Quattro* with the printer before making a final purchase decision. I tried to duplicate some of the problems mentioned on the SIG and could not, which may be a matter of the bugs being already fixed in my review copy or may be dependent on specific hardware and software configurations.)

What's Different?

Needless to say, every function which is in *Lotus 1-2-3* appears to be in *Quattro*, along with many more available functions and menu commands.

Quattro also supports expanded memory. I used QEMM.SYS on a ALR 386 with 2MB of memory, and *Quattro* used the memory. The documentation specifically states that *Quattro* supports the AST RAMpage, Intel AboveBoard, Quadram Liberty and STB MEmory Champion.

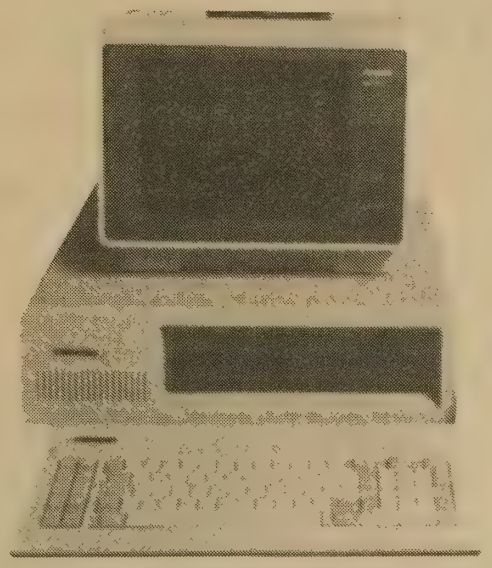
The first difference you will notice is the ability to set your menu system to whatever you wish. You can use either *Quattro* defaults, or redefine

Your Best Source For Quality Products

PC/XT COMPATIBLE SYSTEM

- Turbo XT motherboard
- XT case & 150w power supply
- Floppy disk drive
- Monographics w/printer port
- Floppy controller
- AT look alike keyboard
- Hi-res monitor

$495



AT-286 COMPATIBLE SYSTEM

- 6/10 AT motherboard
- 0 wait state
- 200w power supply
- Western digital floppy & hard controller
- 5339 AT enhance keyboard (101 keys)
- Monographics w/printer card
- 1.2 Drive
- Hi-res monitor

$950

386 COMPATIBLE SYSTEM

1 MB 32 bit RAM
1.2 MB floppy drive
Floppy/hard disk controller
200W power supply
7 expansion slots
20 MHz optional

$2195

FREE Printer Cable & Stand w/ Any Printer Purchase

PRINTERS

Brother	
1409	$359
1509	395
1709	565
HR 20/40	395/735
Epson	
EX 800/1000	$429/525
FX 86E/286E	329/469
LX 800	199
LQ 800	389
LQ 850	520
LQ 1050	695
Citizen	
MSP 10	$275
MSP 40	309
MSP 45	429
MSP 50	385
MSP 55	499
120D	159
180D	175
Star	
NX 1000	$199
Okidata	
192+/193+	$349/469
Toshiba	
321/341	$520/660
Fortis	
2010/2015	$299/395
NEC	
2200	$550
P6/P7	Call

ADD-ON CARDS

384 multifunction card	$78
Multi I/O card	52
Monochrome graphics w/p	42
Color graphics card	45
Memory expansion card	42
Parallel printer card	20
RS-232 serial card	24
Game I/O card	15
Floppy controller w/cable	20
XT hard disk controller	60
Everex 1200 baud modem	85
Everex 2400 baud modem	170
Logimouse C-7	75

HARDWARE

XT keyboard	$50
AT/XT enhanced keyboard	65
150W power supply	50
200W power supply	70
Printer cable	8
360K Floppy Disk Drives	
Teac	80
Fujitsu	70
Seagate ST 225	210
Seagate ST 238	230
Seagate ST 251 - 40 MB	360

Dealers Welcome, Call For Quantity Discounts

Printer Ribbons Available At Low Prices! Call!

SOFTWARE

DATABASE MANAGEMENT

- ☐ #5, #730 PC FILE+: A powerful database management program that is easy to use. Great for creating labels. Works well with PC TYPE+ to generate forms and letters ... $12
- ☐ #287, #288 FILE EXPRESS: An information management program. Small and medium sized databases are easily manipulated by using menu driven commands ... $12
- ☐ #522 INSTANT RECALL: Memory resident program that stores and retrieves a wealth of information ... $6
- ☐ #635, #636 MUSES: Specialized database, organizes manuscripts by publisher, tracking responses and correspondence as well as follow up reminders ... $12

COMMUNICATIONS

- ☐ #310 QMODEM: Fast and easy to use. Has a windowing feature ... $6
- ☐ #499 PROCOMM: A professional communications program ... $6

GRAPHICS
(Programs listed require a color graphics card.)

- ☐ #652 HI RES RAINBOW: This program is easy to use and works with either a CGA or EGA card. Can be used with either a mouse, joystick, or the keyboard to create artwork ... $6
- ☐ #701, #702, #703, #704 DANCAD3D: A 3D Cad system that features rotation and built-in animation. An advanced CAD program for engineering applications ... $24

PROGRAMMING TOOLS

- ☐ #666 SPL: A structured programming language. A hybrid mix of structured BASIC with Pascal ... $6

GAMES

- ☐ #390 FLIGHTMARE: An excellent graphics game. Highly recommended to test your skills ... $6
- ☐ #457 GREATEST ARCADE GAMES This includes Striker and Space Wars, and many more. A must for your game library ... $6
- ☐ #678 GOLDEN WOMBAT OF DESTINY: A text adventure from England. You too can discover the forbidden city of the Great Lost Empire and unearth the mysteries it contains. (Requires a color graphics adaptor) ... $6
- ☐ #723 SUPER PINBALL #1: One of a collection of 5 great pinball games. Menu driven. Works with a CGA card and 128K of memory ... $6

SALES MANAGEMENT

- ☐ #687, #688, #689 PROSPECT: A useful sales management program that allows you to schedule appointments. Searches and retrieves names, activities, or messages with ease and speed ... $18

WORD PROCESSING

- ☐ #78, #627 PC-WRITE: A powerful and popular word processing program, works well with a mouse. Spelling checker is an additional feature ... $12
- ☐ #528 New York Word: This program offers mail merge, test buffering, split screens, and a host of special features ... $6
- ☐ #455, #681, #682 PC TYPE+: This processor is from Jim Button's library. Easy to use and combines easily with PC-FILE+ for mail merge ... $18
- ☐ #480 PC Outline: Comparable to ThinkTank. Outline helps you to arrange and re-arrange items by using different categories of classification ... $6

SPREADSHEETS

- ☐ #199 PC CALC: This program is easier to use than Lotus, very powerful and effective ... $6
- ☐ #696 QUBECALC: This spreadsheet is three dimensional, with an X, Y, and Z axis. Commands are similar to Lotus ... $6

UTILITIES

- ☐ #133 ULTRA UTILITIES: Lost files may be recovered using this program. Features include file review and modification ... $6
- ☐ #405 DESKTEAM: Memory resident utility program that has a phone dialer, printer controller, notepad, calculator, calendar, and an alarm clock ... $6
- ☐ #478 HARD DISK UTILITIES: A selection of the best utility programs that have been selected from over 25 disks in the library and compiled onto one disk for your ease of use ... $6
- ☐ #517 IMAGEPRINT: This program allows your dot matrix printer to generate documents that are in Near Letter Quality format ... $6
- ☐ #523 SIDEWRITER: Text files may be printed sideways with this useful program ... $6
- ☐ #558 PC PROMPT: Memory resident program that has HELP commands on an online mode. Provides syntax of most DOS commands ... $6
- ☐ #608 AUTOMENU: Programs are easily accessible with this program. Batch files and DOS commands are easily executed by "point and pick" ... $6
- ☐ #728, #729 HOMEBASE: The next generation in a desktop organizer Features a calculator ... $12
- ☐ #610 PACKDISK: Optimize and speed up your disk access time ... $6
- ☐ #611 BLACKBEARD: The programmer's editor for writing code in PASCAL, C, or FORTRAN ... $6
- ☐ #579, #580 PASCAL TUTOR: Learn to program in PASCAL in the convenience of your own home ... $12
- ☐ #598 DISKTOOL: Like Norton's. Recover erased files or fix damaged files ... $6

FINANCIAL MANAGERS

- ☐ #393 CHECKBOOK MANAGEMENT: Balancing your checkbook is made easy with this program. Features entry, deletion, bank statement reconciliations, automatic check number, etc ... $6

LANGUAGES/EDUCATIONAL TOOLS

- ☐ #95 MATH TUTOR: Teaches grades 1-6 the basic math skills ... $6
- ☐ #612 FOREIGN LANGUAGES: A self-learning educational tool, provides instruction in Hebrew, German, Spanish, French, and Italian. Multiple choice format keeps track of errors for retesting purposes Beginning and intermediate levels ... $6
- ☐ #705 KID GAMES: Teaches children the alphabet, word conjunction, as well as shape identification. Good graphic program for grades kindergarten through the 4th grade ... $6
- ☐ #712 JAPANESE: Tutorial that provides basic instruction in Japanese, several levels of difficulty ... $6
- ☐ **PC-SIG LIBRARY** 4th Edition ... $12.95

PC Sig Authorized Dealer

UNIVERSAL COMPUTER PRODUCTS

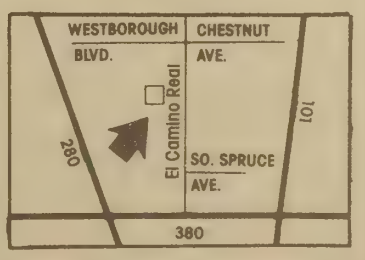
951 El Camino Real, South San Francisco, CA 94080
Mon.-Fri.: 9am-7pm Sat: 10am-5pm

(415) 583-9736

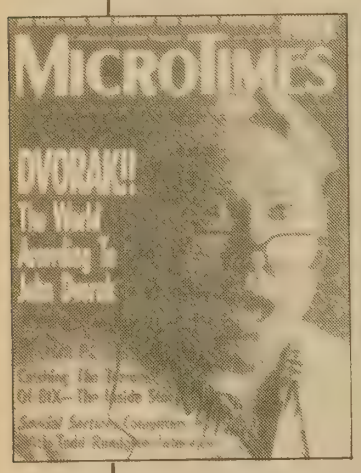
Prices subject to change without notice

master charge

VISA



Subscribe to MicroTimes



And you'll be the winner in more ways than one! You'll get new product updates, software and hardware reviews, industry news and information, user group info, and so much more.

You'll be right on the pulse of the computing world you live in here in California. And you'll never miss a beat, because you've subscribed to MicroTimes and it's delivered to your home every issue.

Plus, in MicroTimes, you'll be able to find all the products and services you'll need to keep computing from local computer stores and businesses.

Start Our subscription-

Company Name_____

Name _____

Address _____

City _____

Please send me: ❑ Bay Area Edition ❑ L.A. Edition

Inside U.S.

❑ 1st Class $50/12 issues In Mexico & Canada $40

❑ 3rd Class $24/12 issues Overseas (surface mail) $40

Allow 3 to 4 weeks for delivery

❑ I have enclosed check for $_____

❑ Please charge $ _____ to Visa/MC

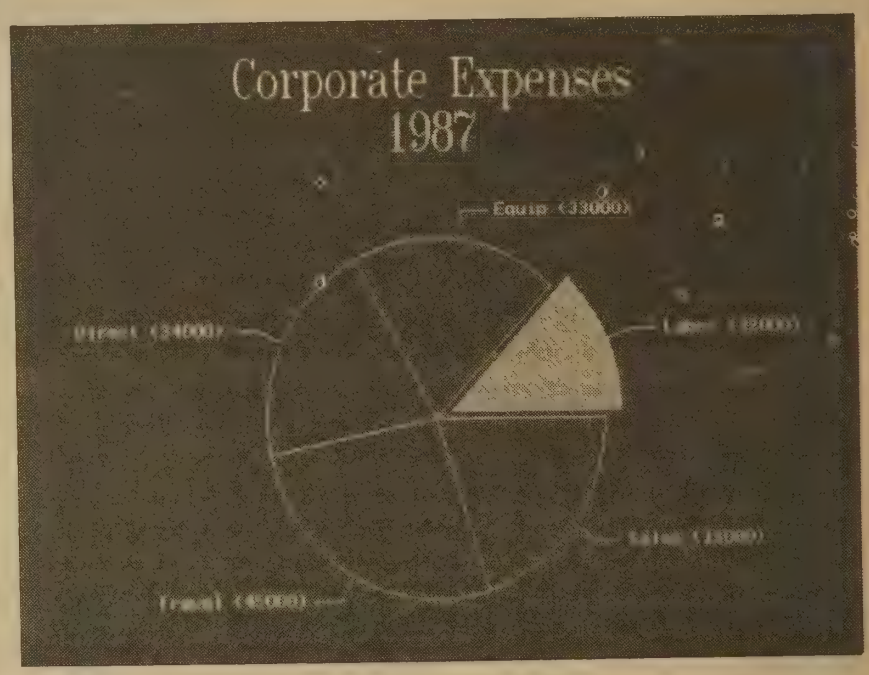
_____ Exp. _____

Card Name _____

Signature _____

Mail to: MicroTimes Subscriptions
5951 Canning Street
Oakland, CA 94609
(415) 652-3810

Quattro is smarter than 1-2-3. It automatically detects the type of system you are using and works correctly. The installation is simple. Create a subdirectory. Copy the files. Run the program. Select your printer.



Users can choose among ten graphics options and customize patterns, colors, titles and fonts.

the system as a 1-2-3 menu structure. Even then, the file names will pop up in a vertical window rather than across the horizontal menu line, probably for look-and-feel reasons. You can also redefine the menu structure to anything you wish and customize *Quattro* to your personal tastes as to what should be where.

If you're worried about your ability to import and export many different types of files, you'll be pleased with the way in which *Quattro* supports file translation. When you specify the file extension during either a load or a save operation, *Quattro* will create the file in that format: ".DB" for *Paradox*, ".DBF" for *dBASE III*, ".db2" for *dBASE II*, ".WRK" for *Symphony*, ".WK1" for *Lotus 2.0*, ".WKS" for *Lotus 1A*, and ".WKE" for Lotus educational — whatever that is.

SQUEEZE is also bundled with *Quattro;* if you include the various SQZ file extensions, *Quattro* will automatically compress your file to help save disk space.

Sorting is done nicely. You can have either a true alphabetic sort with both "A" and "a" sorting together, as well as a true ASCII sort with the symbols arranged by decimal order.

Quattro has a transposition function: the BLOCK ADVANCED TRANSPOSE command will change the rows to columns and the columns to rows for the defined BLOCK.

Among *Quattro*'s major functions are one-way and two-way sensitivity tables, which are explained at some length in the documentation. An experienced spreadsheet user might wonder why, since the entire process as illustrated could be done faster and easier with a simple formula.

However, the use of the one-way and two-way tables with a database is a significant feature. You can query the database for Counts and Averages using either numeric or alpha column information. For example, the formula @DCOUNT(A2..D15,1, F3..F6) says to count in column 2 (the first column is column 0) of the block starting at A2 and ending at D15, and

Mitsubishi Color Monitors

13"- 19"- 35"

TASK TECHNOLOGY offers the best combination of price and availability on high quality Mitsubishi color monitors. A color monitor for almost every application - and more to come!

- **CGA, EGA**
- **VGA**
- **Mac II**
- **Presentation Graphics**
- **CAD/CAE**
- **PGC**

Call for a Complete List of Products

TASK TECHNOLOGY, INC.

244 Sobrante Way Sunnyvale, CA 94086

(408) 773-0600

(800) 992-TASK

SATURDAY, MAY 7

COMPUTER BARGAIN SHOW

BAY AREA Computer Swap

EVERY ITEM ON DISPLAY IS AVAILABLE FOR IMMEDIATE PURCHASE AT BARGAIN PRICES

COW PALACE
SAN FRANCISCO

DIRECTIONS: From 101 or 280 take the Cow Palace Exit. Follow the signs to the Cow Palace, located at the corner of Geneva & Santos.

Admission $5 Children Under 12 FREE Sat. 10 a.m. - 5 p.m.
For Info. Call 415-340-9113

A MICROSHOWS PRODUCTION

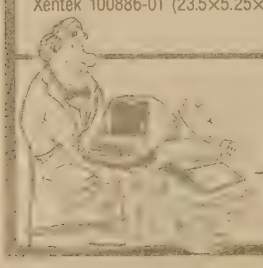
Power Supplies

Switcher

AcDc Electronics RS5N10-102-Enclosed (7×4.5×2.5) +5V @ 10A $19.95
Astec (7.75×4.25×2) AA11261 +5V @ 6A, +21V, ±25V or +28V @ 1A, +25V @ .2A $19.95
Astec AC8353 (6.25×7.50×2) +5V @ 3A, +24V @ 2.2A, −12V @ .17A $19.95
Boschert OL400-3015R (18.87×5.2×3.0) +5V @ 5A, −5V @ 2.5A, +12V @ 4A, −12V @ 4A, +24V @ 3A $49.95
Boschert XL45-3601 +5V @ 5A, +16 @ .2 ..... $29.95
Boschert 80020-01 20W (5×3×1) +5V @ 2.2A, +12V @ .35A, −12V @ .35A $12.95
Boschert 80015-0 20W (5×2×1) +5V @ 2.2A, +12V @ .35A, −15V @ .35A $12.95
Compower OL-50/65 (7.75×4.25×2) +5V @ 6A, +28V @ 1A, −5V @ .7A $19.95
CSS 83DA/8922 Open (5.5×3.5×1.5) +12V @ 2A $15.95
Data Power 15A0193-005 (6.25×10.75×2.5) 110 VAC +5V @ 16A, +24V @ 6A, +12V @ 3A, +12V @ 4A $59.95
Deltron Q250 (13.5×2.5×4.75) +5V @ 30A, +12V @ 4A, −12V @ 4A, +24V @ 4A $59.95
El Pac Power Systems MASS-210-3 (13×5×2.5) +5V @ 15A, +12V @ 6A, −12V @ 1A, −5V @ 5A $29.95
Pioneer Magnetics PM2675A-2-3 (10.75×5×8) +24V @ 10A, +12V @ 4A, +5V @ 5A $70.00
Pioneer Magnetics PM2497A-2 (11×8×5) +5 @ 100A $75.00
Xentek 80-0068-001, 110 VAC, +5V @ 3A, +12V @ 3A, +24V @ 1.5A, −5V @ 1.5A, −12V @ 1.5A $29.95

Linear

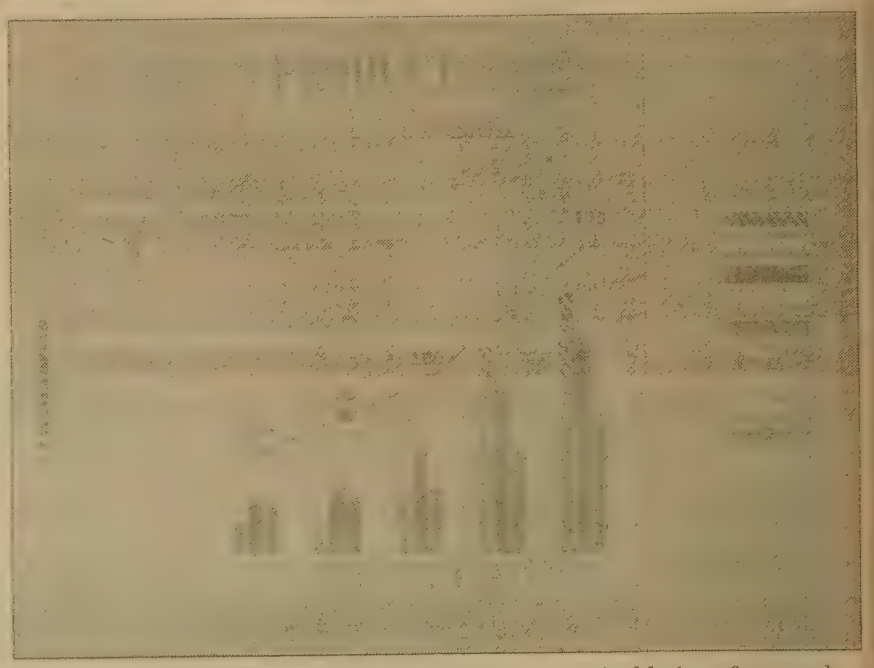
AcDc Electronics 5N5.7-1-E, 220V Only, 5V @ 5.7A $18.00
Computer Products PL161-001 (7×5.75×2.5) ±15V @ ±1.5A $24.95
Condor CP564 Open (10.5×3.5×6.5) −15V @ 6A, −5V @ 6A, +24V @ 4A, −12V @ 1A $29.95
International Power IHC12-3.4 (4.87×5.62×2.5) +12V @ 3.4A $19.95
Lambda LYS-W-28 (5×9×3) 28V @ 9.5A $39.95
Lambda M-YSW-2 LYS-W-28 ..... $19.95
Lambda LOS-X-5 Open +5V @ 9A $19.95
Lambda LOS-X-12 (7×2.5×4.75) 12V, ±5%, 5A @ 40°C $29.95
Power One CP205 Open +24V @ 1.5A, +5V @ 1A, −5V @ .5A $15.95
Soresen STM5-36 (14×5×3.5) 4.5-6V @ 36A $54.00
Soresen 15-10 (9.5×5.25×3.5) 13-17V @ 10A $45.00
Standard Power 30B20H Unregulated (2.75×5.25×2.4) 12V @ 1.5A $8.95
Xentek 100886-01 (23.5×5.25×5.25) ±5V @ 5A, ±121V @ 1A, −50V @ 1A $19.95



Computer Surplus Store
715 Sycamore Drive, Milpitas, CA 95035
408-434-0168 FAX: 408-434-0931

MAIL ORDER: 408-434-1060
9:00 a.m.–3:00 p.m. PST

If you have felt constrained by Lotus 1-2-3, but cannot afford to move up to Excel, Quattro is an excellent choice.



Quattro offers fast processing speeds, a user-customizable interface, and amazing graphics capabilities at a fraction of 1-2-3's price.

give the count of the total number of items found in column F3 to F6. This type of built in syntax means no longer will you have to type long involved Boolean type of operators to get a count or average of a specific item in a database.

Matrix Multiplication is also supported. If you solve linear equations, you can have as many columns as you have rows. I tried the example in the documentation and it worked. I couldn't think of a real life problem to test. If any of you use linear equations in the real world, I would appreciate hearing about it.

Dates are also easier to enter in *Quattro*. Precede the date with a Control D and enter the date as you would normally type it...3-5-42 for March 5, 1942.

Regression analysis in *Quattro* provides the statistics you may need in their own table. Included are the Y intercept, called by *Quattro* the constant, the Standard Error of Y estimate, R squared, N, Degrees of Freedom, X Coefficients and Stand error of Coefficients. Everything is linear.

Maybe an update will allow true curve fitting, when a data set can be regressed a number of different ways such as linear, polynomial, power, exponential, and logarithmic, so that the best fit can be seen at a glance. Also nice would be an automatic graphic of the results of regression with the predicted values plotted through the scattergram of the raw data.

If you import significant amounts of data into your spreadsheets, the PARSE command will be convenient. You load your ASCII file as a label into a single column. Then you parse the data using your cursor and a special format line. When done, *Quattro* parses the column and moves each of the columns indicated into a separate column.

Quattro's graphics really shine. You can create professional looking graphics using 10 different types: Lines, Bars, 3-Dimensional Bars, Stacked Bars, XY, Pie, Area, Rotated Bars, Markers, and Combined markers and lines are all available.

Quattro also contains all of the functions within the basic menu structure. To print graphics you no longer have to exit the main program to find the printing menu.

The graphics program also allows you to save the graphics in a EPS file, which can be imported into programs which use PostScript or a standard *Lotus* PIC file. To test compatibility, I loaded the PIC file into *Freelance* just to see if it would be recognized. It was.

As you can see, *Quattro* does everything that *Lotus 1-2-3* does, and then adds significant features. It is a major spreadsheet. It can do any typical and not-so-typical spreadsheet application which you might find useful. If you have felt constrained by *Lotus 1-2-3*, but cannot afford to move up to *Excel*, *Quattro* is an excellent choice. (Suggested retail on *Quattro* is $195; for information contact Borland International, 4585 Scotts Valley Drive, Scotts Valley, CA 95066, 408/438-8400.)

Copyright © 1988 by Woody Liswood. All rights reserved.

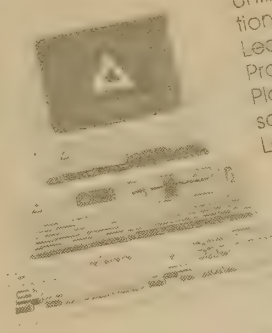
We Have It All...

Largest software selection in the world
Everything for APPLE, IBM, ATARI, AMIGA, EPSON

THE NEW
LEADING EDGE SUPER SPEED D2 COMPUTER IN STOCK NOW

LEADING EDGE

Featuring:
- 80286 (6, 8 and 10 MHz)
- 1.2MB disk drive
- Six full-sized expansion slots
- Parallel and serial ports
- 640K RAM exp. to 1MB
- EGA, CGA, MDA, and Hercules graphics emulation with automatic mode switching
- 101-key keyboard
- MS-DOS 3.2 and GW BASIC 3.2
- 40 & 60mg fast access drives in stock now



Unlike the competition, we include Leading Edge Word Processor and VP Planner spreadsheet software with all Leading Edge systems.

LEADING EDGE #1
NEVER UNDERSOLD

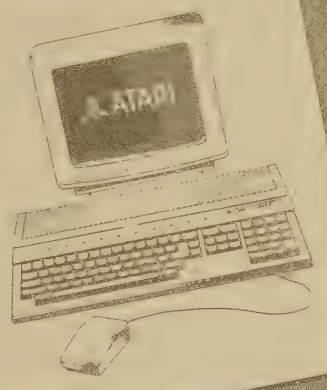
Leading Edge and Logo and Model "D" are registered trademarks of Leading Edge Products, Inc.
Authorized Leading Edge Repair Center – all parts in stock

Leading Edge Model D in stock now.

ATARI Authorized Business Center

Atari 1040ST monochrome system	$787.00
Atari 1040ST color system	987.00
*Atari Mega ST 2 monochrome system	1700.00
*Atari Mega ST 2 color system	1900.00
*Atari Mega ST 4 monochrome system	2400.00
*Atari Mega ST 4 color system	2600.00
*Atari SLM 804 laser printer	2000.00

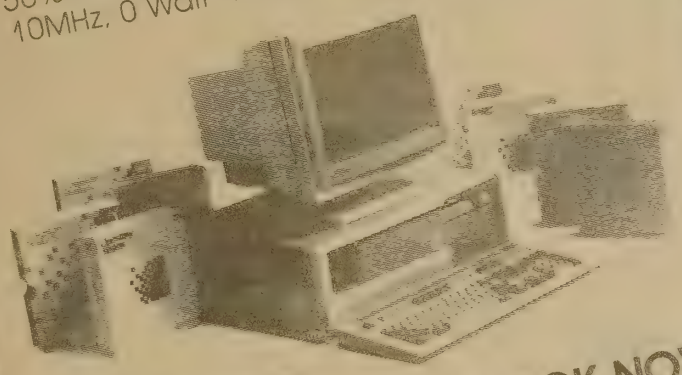
* Price includes a word processor, spreadsheet, database software packages and training.



ATARI Atari Authorized Business Center

AST PREMIUM/286

#1 RATED AT,
"EDITOR'S CHOICE P.C. MAGAZINE"
50% faster than the 8 MHz IBM PC AT.
10MHz, 0 Wait 100% Compatible



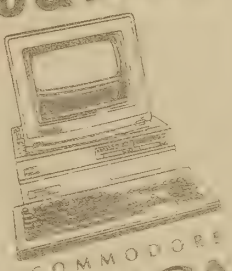
AST RESEARCH INC.

IN STOCK NOW
Authorized Retail Dealer

All Computer sales include free training.
Authorized service & repair.

COMMODORE AMIGA 500 & 2000

Both in stock
Lowest price available



- Motorola 68000, 16/32 bit CPU comes with built-in disk drive, keyboard, mouse, power cable, documentation and system software
- IBM PC compatible
- Standard 1MB RAM expandable to 9MB
- Multi-tasking operating system
- 4 voice 2 channel sound output with built-in speech
- 5 Amiga™ expansion slots 4 IBM-PC® expansion slots 2 special purpose expansion slots
- 4096 available colors

COMMODORE AMIGA
Authorized Amiga Dealer

30% off retail on all Amiga software with purchase of system through April 30th.

WINNERS CIRCLE SYSTEMS

2611 Telegraph Ave. • Berkeley, California • [illegible]
Authorized Corporate & Institutional Dealer

Studio Graphics Meet The White-Collar Office

If you're in business, now is the time to learn something about professional-level computer graphics – before you feel forced to make an informed investment.

By Ken Milburn

For the most part, the quality of graphics generated on PCs is pretty crummy, if you compare them to older methods of producing artwork for business. Yet, every day, we see computer-generated illustrations that are so good that we're not even aware that they were "made-by-computer." They appear in special effects in films, in corporate annual reports, on TV as titles and weather report backdrops, and in "real-world" simulators like the Link flight trainer.

There are several good reasons why PC graphics are generally primitive by comparison: 1) It's taken us time to learn how to accomplish more fundamental business tasks on a computer. 'Til we've managed that, there's not much "perceived need" for fancy graphics. 2) The electro-mechanics of designing and producing the hardware required to display and print graphics of photographic resolution, tonal-range and color are complex and expensive. So such hardware is priced out of the reach of most small businesses and corporate departments (except, of course, those whose full-time occupation is the production of graphics). 3) Software that can take full advantage of such complex hardware is equally complex and expensive.

These are all reasons why some "gurus" claim that businessmen will never buy into pro-level graphics. In my opinion, there are counter-forces at work that will make unlimited graphics capabilities not only desirable, but necessary. First, both the hardware and software will become cost-justifiable as the market broadens. Second, the capability to do desktop publishing and presentations is quickly being adopted by the majority of personal computer users. The reason is that visually effective communications give their participants a competitive edge. Computerized graphics have the potential for making a small business' communications as impressive as those of large corporations with unlimited resources.

The final arguments against widespread adoption of photo-quality graphics are: 1) that those who would use them aren't trained as artists — in other words, they don't know how to communicate visually, and 2) that they can't afford the equipment needed to produce publication or photographic-quality hard-copy.

Those problems are already being overcome. In the same way that there are templates for spreadsheets and style-sheets for publications, there will be clip-art libraries for every purpose. And in the same way that you can take your *PageMaker* files to a service bureau when you need Linotronic output, you will be able to take your graphics files to a service bureau for halftoning, color separations or output to a phototypesetter or film recorder.

In fact, integrated text and graphics programs such as Aldus *PageMaker* and Xerox *Ventura Publisher* are the starting point for this odyssey into the high end. Furthermore, the graphical user-environments (like Macintosh Finder, GEM and *Windows)* are making us all more familiar with the intuitive way that art programs are used. When producing and publishing a graphic reaches the same level of elegance and ease of use as text, both will be used to communicate ideas. Certainly, there is a growing expectation in the business world that you'd better have pictures with your copy, and those pictures had better reflect a high level of professionalism.

The reason is that high quality graphics make a difference in keeping that competitive edge. And the price for owning and renting systems that can generate such graphic images is dropping precipitously.

Dedicated systems that used to cost over $200,000 can now be had for under $50,000. Many high-end paint programs (e.g. *Lumena, TIPS, RIO, Crystal, Dubner*) can run off an AT-compatible. Color printers and film recorders with presentation quality output can be purchased for as little as $6,000.

The Mac II is also stimulating the development of a comparable high-end paint and animation packages — though these systems, fully configured with a high-res color monitor and output device, will still cost over $20,000.

Two dimensional paint programs such as Lumena (TimeArts), *TIPS* (TrueVision), or the ArtStar 2-D system offer the user a selection of literally millions of colors that can be blended, shaded, spray painted, drawn, scrolled, and patterned to precisely represent an imagined or real-life object. You can zoom in to edit pixels, create perspectives, and usually import images from photographs or other software packages.

Other programs and systems dedicated to complex three-dimensional modeling and animation sequences include TOPAS/Crystal 3-D, Cubicomp PictureMaker, and Intelligent Light. With three-dimensional modeling you can show your clients a picture of a new product, before it's been designed. Or you could infuse drama into a sales presentation by stripping the product from surface to interior, detail by detail, in an animated sequence.

Prices Are Falling

Actually, the march to affordability has already begun. Some of the best systems are built on custom-configured AT-class PCs. What's added are specialized graphics boards ($1K – $4K) and super-high-resolution (1 – 2,000 pixels) large-screen color monitors ($1,500 – $4,000).

Unfortunately, the development of high resolution color peripherals seems to be lagging behind hardware and software in the high end market. However, a new breed of high resolution peripherals for making computer-generated four color separation, hardcopy, slides, and video is just now emerging in the form of thermal color printers, film-recorders and broadcast-quality video recording devices. In the last year or so, prices for these have dropped from an average of $15,000 to around $7,000 ,and are still falling.

Dedicated systems for broadcast quality animation and long 3-D animation sequences are considerably more expensive — from $20,000 – $300,000.

Dedicated graphics workstations are being introduced at a furious rate, some at prices no higher than an AT or Mac II configured as described above. All the "big names" in workstations (Sun, Apollo, DEC, Silicon Graphics, NeXT) are in this race for the low end. Each new machine promises to reach new heights of graphics manipulation — video, full color animation, paint systems that rival the best artist's palette, and new ways of displaying 3-D images — the array of fast and faster drawing features is mind-boggling.

No sooner is a workstation introduced than it's preempted by competing machine. And new versions of graphics software arrive at an even faster clip.

Freelance graphics professionals, many of whom are very small businesses by *Fortune* standards, can afford to start working more efficiently by adopting computers. These include architects, designers, engineering firms, broadcasters, ad agencies and marketing departments.

More significantly, more traditional "white-collar" businesses can now afford to bring high-end graphics in-house, and can reduce their dependence on outside talent and facilities.

But this breakneck pace of new products that creates new generations in months rather than years means massive chaos when it comes to business buying decisions. Do you buy today, or wait for the next more powerful, less expensive generation that might come along next week?

The high cost of purchasing and maintaining up-to-date equipment prohibits most businesses from buying a high-end system outright. And all of these systems are difficult to learn — requiring some art training and a minimum of 30 hours of

Copyright © 1988 by Ken Milburn. All rights reserved. *Ken Milburn is a freelance writer on Microcomputers. His articles have appeared in numerous computer publications, including* PCWorld, InfoWorld, Computer Graphics World *and* MicroTimes. *He also does system configuration for small businesses. He can be reached at (415) 331-6926 or by sending E-mail to (ken) on the WELL, (415) 332-6106.*

COMPARE AND SAVE

AST RESEARCH INC. · TOSHIBA · LEADING EDGE AUTHORIZED RETAIL DEALER · EPSON PRINTERS · SAMSUNG Electronics · AUTOCAD · NEC · EVEREX COMPUTER SYSTEMS DIVISION · ZENITH

COMPUTERS

Leading Edge Model D 2 Dr. Mono System	$749
Leading Edge Model D 20MB Mono System	$999
Leading Edge Model D2 20MB Mono System	$1499
AST Premium 286, 1MB RAM 20MB HD, 1 Dr, EGA Card	$2295
AST Premium 286, 1MB RAM 40MB HD, 1 Dr, EGA Card	$2495
AST Premium 286, 1MB RAM 70MB HD, 1 Dr, EGA Card	$2895
AST 386-40	$4495
Compaq Deskpro 286, 640K, 40MB HD, 1 Dr	$2350
Compaq Deskpro 386/20-60-MB	$5595
Compaq Portable II Model IV	$2725
Compaq Portable III /20/40	$3649/4250
Compaq Portable 386 /40/100	$5795/7295
IBM Model 30-002/021	$1275/1699
IBM Model 50-20MB	$2650
IBM Model 60-44MB	$3395
IBM Model 80-44MB	$5195
Wyse 386-40 MB/KB	$3050
MAC PLUS	$1549
MAC SE 2DR/STD KB	$2099
MAC SE 20MB/STD KB	$2699

Micro 286

Micro 286 Computer, 80286 CPU, 8-10 MHz, "0" or "1" Wait State,1.2 MB Dr., 512K RAM, Keyboard, 2 Ser/1 Par on M.B., AMI BIOS, HD/FD Contr., 8 Slots (2-8/6-16 bit), 200W Power Supply, Socket for 80287 **$895**

Micro 88

Micro 88 computer, 8088 CPU, 4.77/10MHz, 256K RAM, 1 Dr. , Keyboard, 150W Power Supply, Socket for 8087, Ser/Par Slots, Monographic Card and Monitor **$529**

LAPTOPS

Zenith Z-181	$1450
Zenith Z-183-10 MB	$2195
Zenith Z-171	$1395
Toshiba T-1000	$775
Toshiba T-1200	$2350
Toshiba T-3100/20	$3095
NEC Multispeed EL, 2 Dr	$1475
NEC Multispeed HD	$2495

BOARDS/MISC

AST RAMPAGE XT/AT	$249/449
Intel Aboveboard PS/2	$399
Intel Aboveboard 286- 0 K	$249
Intel Inboard 386 XT/AT	$795 /1195
Everex Boards	Call
Microsoft Mouse BUS/SER	$105
Logitech C7 Mouse	$79
Mouse Systems Mouse w. Dr. Halo	$115
8087-3/8087-2 Chip	$119/165
80287-6/80287-8 Chip	$189/265
80287-10/80387-16 Chip	$325/549
Keytronic KB101 Keyboard	$79

PRINTERS

Okidata 192+/193+	$319/455
Okidata 292E/293E	$499/599
Okidata 182+	$269
Okidata 294/393	$895/995
Toshiba 321SL/341SL	$479/699
Panasonic 1080i/1091i	$199/229
C-Itoh 310/315	$499/649
Epson LX800/LQ800	$199/349
Epson FX86E/FX286E	$289/409
NEC P6/P7	$449/599
NEC P2200 Epson LQ500	$369
Epson LQ850/LQ1050	$Low
Dynax 21	$399
HP Deskjet	$799
Diconix Inkjet	$349
HP Thinkjet/Quietjet	$399/639

LASER PRINTERS, PLOTTERS

HP LaserJet II	$1699
Okidata Laserline 6	$1599
Toshiba Pagelaser 12	$2749
NEC LC890 w/Postscript	$3295
AST Turbolaser w/Postscript	$3295
AST Turbolaser	$1695
HP 7440 Plotter	$1049
HP 7475 Plotter	$1549
HP 7550 Plotter	$3150
HP Scanners	Call
Houston Inst. DMP51 Plotter	$3295
Houston Inst. PC695A	$629

VIDEO BOARDS

Vega 7 Deluxe	$235
Vega 7 VGA Card	$295
Genoa Super EGA 800X600	$225
Everex Micro Enh. Deluxe	$165
Paradise Autoswitch 480	$195
Monochrome Graphics Card	$79
Hercules Plus	$189
ATI EGA Wonder /VIP	$225/299
Paradise VGA/VGA Plus	$295
Paradise VGA/VGA Prof.	$425

MONITORS

Packard Bell Mono	$89
Quimax 14" Mono	$139
NEC Multisync II	$585
NEC Multisync Plus	$999
NEC Multisync XL (19")	$2349
Sony Multiscan	$585
Amdek 410	$160
PGS Max12	$160
Magnavox/Relisys EGA	$399
Magnavox RGB	$299
Nanao B/W	$125

MODEMS

Leading Edge 1200/	$99
Everex 1200/2400 Int.	$95/195
Everex 2400 Ext. /1200 Ext.	$229/125
Hayes 1200 Int/Ext	$299
Hayes 2400 Int/Ext	$439

DRIVES/TAPE BACKUPS

Seagate ST 125 Kit	$355
Seagate 20MB Kit	$289
Seagate ST251 /ST251-1	$425/499
Fuji 20MB Kit	$325
Micropolis 40MB	$649
Micropolis 70MB	$825
Miniscribe 3650, 40MB, 1/2HT	$375
Miniscribe 6053, 40MB	$649
Miniscribe 6085, 70MB	$825
Micropolis 140MB ESDI	$449
Fuji Hardcard 20MB	$379
Plus Hardcards	$Low
Rodime 3.5", 40MB, 28ms	$699
Irwin 40MB Tape B/U Int.	$449
Mountain 40MB Tape Int.	$399
360K/E720K Ext. Dr. Toshiba 1000	$265
Fujitsu 360K Drive	$79
Teac 1.2MB Drive	$109
Toshiba 3.5", 720K /1-44MB Dr.	$119/145
Mitsubishi 3.5", 720K/1-44MB Dr.	$109/139
1.2MB/360K External Drive for IBM PS/2	$299
20MB Hard Disk for MAC PLUS	$549

SOFTWARE

PFS: First Choice	$125
WordPerfect 4.2	$195
Borland Turbo C	$69
Borland Quattro	$125
Borland Turbo BASIC	$69
Borland Turbo Pascal	$69
Borland Reflex	$129
Borland Turbo Prolog	$69
Lotus 1-2-3	$299
Generic CADD 3.0	$69
Xerox Ventura	$499
Aldus Pagemaker	$499
Microsoft Quick C	$74
Microsoft Excel	$325
Microsoft Word	$239
Microsoft C	$295
dBASE III+	$399
Laplink	$89
AutoCAD	Call
Paradox 1.1/2.0	$219/449
Windows/Windows 386	$75/149

All prices cash/cashier's check • Visa/MC add 3%
Prices subject to change anytime without notice.

monarch computers

847 San Pablo Ave.
Albany, CA 94706

Phone (415) 526-7741
Fax (415) 526-7859

Mon-Sat 9:30 am-6:00 pm

instruction and practice.

What it all adds up to is that if you're in business, now is the time to learn something about professional-level computer graphics — *before* you feel forced to make an informed investment. The best way to learn is, of course, to get some hands-on experience.

Where To Get Hands-On Training

Fortunately for the business community, there are at least two schools — both located in Northern California — that have undertaken the much-needed task of training users and businesses on sophisticated computer graphics systems. Both of these schools concentrate on vocational training for graphics professionals, but they also teach overview courses on industry developments that would give any MIS Director or business owner a clear idea of which of these complex systems best suit particular tasks, what sort of training is required to operate them and what the *real* costs of training and installing such a system would be.

Tucked away in San Francisco's SOMA design community are Suite 3D and The Computer Arts Institute. The two schools were founded by Harold Hedelman and Rodney Stock, respectively. In fact, the two men were once partners. But the philosophical rift that broke up the partnership is the San Francisco community's gain. Both schools are committed to the concept of vocational training — that is, the notion that well-taught, hands-on computer graphics trainings breeds good, employable operators. Classes can be taken singly or as part of a core program.

There is great emphasis on working with and servicing the business community. Graphic artists can rent time on machines in either facility and both offer considerable service bureau options. Both also offer custom on-site training seminars for businesses and dealerships.

Suite 3D, for example, recently ran a series of courses on newspaper illustration, taught at The San Francisco *Chronicle* by one of the paper's top designers. The school has also been developing courses for the fashion design.

The Computer Arts Institute is specializing in providing training for a number of very high-end systems for engineering and broadcasting — including the Dubner TurboPaint, the Intelligent Light, and ArtStar systems. The Institute also provides custom training to businesses on systems and has organized "Buyer's Assistance Seminars" to help businesses evaluate graphics systems in a non-sales environment.

We interviewed Rodney Stock, President of Computer Arts Institute and that interview appears in an accompanying sidebar. □

Copyright © 1988 by Ken Milburn. All rights reserved.

The Computer Arts Institute: Professional Graphics Training

The Computer Arts Institute is particularly proud of its inventory of over $600,000 in high-end graphics equipment. To attain this massive offering, the school maintains solid liaisons with many of the country's leading-edge graphics manufacturers.

Many of the these ties begin with the Institute's founder and President, Rodney Stock — a graphics guru in his own right, who brings 21 years of experience to his task as educator. He is a well known speaker, writer, consultant, and computer-graphics designer with several patents to his name. To learn more about how The Computer Arts Institute meets the business community's needs for high end graphics training and service, we interviewed Rodney Stock, president and founder of CAI at its Townsend Street location.

How did you become involved with computer graphics?

Well, I dropped out of Northeastern in my freshman year to work as a junior technician at Adage, where they were designing the first 3-D vector system. I worked for a number of companies that resulted in lots of promotions. In 1971, AMPEX hired me to be hardware designer for the AVA - 1&2 paint system. After that, I worked for Evans and Sutherland, who were doing absolutely brilliant real-time graphics simulation. My last job was Lead System Designer on the Pixar Project for Lucas Film.

How does a college dropout become interested in education?

I'm not against education per se. In fact, I was Chairman of the SIGGRAPH Tutorial on State of the Art and Image Synthesis for three years as well as a Broadcast Designers Association speaker. But I do feel that a college education doesn't necessarily train one for a career in computer graphics. The trouble with the graphics industry is that the people who have the technical expertise don't communicate well, and the communicators don't have the expertise. To operate or train others on a high-end system, you need hands-on experience. I call this vocational training and that's what we offer at CAI.

$600,000 sounds like a lot of equipment to me. How did you manage to amass this collection?

It is. I buy, lease, receive donations, borrow, or trade consulting. I've dedicated my life to being at the leading edge of computer graphics. I owe my allegiance to the industry and I've got a deep commitment to seeing the industry grow. I'm friends with most of the manufacturers and they are well aware of what I'm trying to do at CAI.

On what systems do you provide training?

For 3-D, we have two Cubicomps, a Digital Arts, Crystal 3D, 3 Topaz systems, ArtStar 3D Plus, and a new Intelligent Light system. For 2-D we have TIPS, RIO 16/32, ArtStar, a Dubner TurboPaint, and an AVA 3 system. Finally, for desktop publishing, we have a Mac Plus, a MAC SE, multiple Mac IIs and in my opinion, the best *Illustrator* (Adobe) training in the city. We also have some very high quality peripherals including a Matrix film recorder and a Howtek color scanner.

What is the range of jobs for which CAI trains students?

They might become demonstration operators, technical support representatives, Trainers for manufacturers and dealers, presentation artists, desktop publishing artists....Some of our students have gone on to start their own businesses.

What kind of salaries can these folks expect?

Depending on the level of responsibility they're undertaking, probably between $20,000 and $55,000.

Can you tell me what some of your graduates have gone on to do?

Sure. Ron Kelley comes to mind. He was a produce manager at Safeway for fifteen years, but before that he'd received a degree in art. He had the opportunity to change careers and took our full Foundation course in 2-D and 3-D animation — that runs eight months at a cost of approximately $6,000. Ron got a part-time job at Penrose Productions — a production house in Menlo Park. After a few weeks, he was offered a full-time job. It's his dream.

Have you been able to "thank" some of the manufacturers who gave you equipment with a trained operator?

Absolutely. Michael Willis was a designer who took our series of Cubicomp courses. After graduating, we placed him at Cubicomp as a demonstration artist. Later, he was promoted to one of two in-house animators. Another fellow used to drive up from Palo Alto on his motorcycle — he's now working for Cubicomp in Milan, Italy. Of course, there are many students who don't check back once they've graduated.

Beyond training operators, what services do you offer business?

Essentially, we give business the opportunity to train on a $300,000 system for over 30 hours at a cost of under $300. We also offer a number of "hands-off" informational overviews for the executive who has a need to learn about what's out there in computer graphics. Our "Buyer's Assistance Seminars" that help businesses to evaluate different systems, are very popular. I've noticed that a number of manufacturers are beginning to sponsor similar seminars.

We also offer custom training on machines for dealers and salesmen, particularly for those systems that don't provide enough technical support. These run from two to four days with a maximum of four participants.

How about a service bureau?

Good point. We can offer specialized services because of our huge equipment inventory. We charge less than full production houses — but we can't offer the same level of responsiveness. We definitely take longer.

Who might use your equipment or services?

We have one customer who is an environmental designer. Using the Howtek scanner he's able to scan photographs of the site he's designing. Then he adds details of how he's planning to change the site with a paint program. Finally, he takes a slide of the new image. He informs us that he's won several contracts through this method of showing the client exactly what he's going to see in the finished project.

What trends can a user expect in the next three years?

I think that there will be a proliferation of Mac IIs. We'll see the technology advance faster than the applications, making buying decisions as precipitous as ever. Desktop Publishing will grow as pre-press printing becomes cheap. Color print and four-color separation will explode and we'll be able to enhance and modify photographs with an increasing degree of ease. The good news is that prices will keep dropping.

— *Ken Milburn and Priscilla Rowe*

GREAT SELECTION, PRICE, QUALITY & SERVICE
PC/XT/AT EXPANSION PRODUCTS

Everex AT System

8 MHz, 1 Wait State $850
10 MHz, 1 Wait State 950
10 MHz, 0 Wait State 1050
12 MHz, 1 Wait State $1225

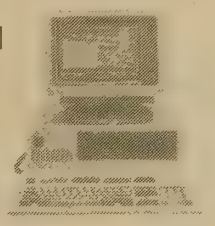
Includes:
- 512K on Board
- AT Keyboard
- 200 W Power Supply
- 1.2 Meg Floppy Drive
- Floppy + Hard Controller
- 48 Hour Burn-In

★ ★ SPECIAL ★ ★
Archive Tape Back Up Internal 40 MB for XT's & AT's & Compatibles. Model 5240.
$349

30 MB TURBO XT COMPATIBLE SYSTEM

- 256K on Motherboard w/Case
- 4.77-8 MHz
- 150W Power Supply
- Keyboard
- 1-½ Height Drive
- 30 MB Hard Disk w/Controller
- Mono Graphics Card w/Monitor
- Serial & Parallel
- Clock w/Game
- Floppy Controller
- Softpatch Turbo Bios

ONLY $785



AT 12 MHZ COMPATIBLE SYSTEM

- 512K with 120NS Memory
- 1 Wait State 6/8/10/12 MHz
- 1.2 Floppy Drive
- Floppy & Hard Disk Controller
- AT Keyboard
- 200W Power Supply
- Mono/Color Graphics w/Printer Port
- Monitor
- SI = 12.9

ONLY $999

XT 10 MHZ SYSTEM-256K, 2 Drives . Only $650
PORTABLE XT TURBO . . . . . Only $759
LCD LAPTOP PORTABLE SYSTEM . Only $995
FARADAY 8 MHZ AT SYSTEM . . . . . Only $825
TANDY 4.77 MHZ AT SYSTEM. . . . . Only $475

Ask For Our 386 Turbo Systems

8087-3 (5 MHz)	105	4164-150/120/100	Call
8087-2 (8 MHz)	150	4416-15	2.00
8087-1 (10 MHz)	195	44164-15/12 NS	Call
80287-8	235	41256-150/120/100/80	Call
80287-6	155	4128-15 (Piggy back)	3.50
80287-10	275	68766-35 or 8748	10
80387-16/20	Call	TM4164EL9-12	17
6264 LP-15	3.99	4116-200 or 150	65/.80
51258P-10	6.75		
V 20-5/8/10	8/9/15		
V 30-8/10	11/25		
2764-25	3.00		
27128-25	4.50		
27256-25	5.50		
8250N-B	7.00		
16450N	10.00		

DISPLAY ADAPTERS

Color graphic card with printer port	$45/60
Paradise EGA autoswitch or EGA 480	150/170
Everex Micro Enhancer 1/2 size or with printer port	135/150
Mirage color graphic simulator card	90
Mono card with printer port/Mono graphic with printer port	49/55
Excelerator Turbo Board for XT and PC (Everex)	250
Sigma color 480	250
Everex the edge	230

I/O CARDS

Disk, 2 ser, 1 par with game & clock, 2nd ser opt	$65
Ser, Par with clock (XT); ser with par port (AT) by Everex, 2nd ser opt	55
Serial or printer card or serial with clock	25/40/40
Dual game port or clock card	28

MODEMS

300-1200 baud - internal/external	$69up/119
Qubie 2400 baud - internal or external	240
Everex ½ slot 1200 baud or 2400 baud - internal or external	85/175/225
Avatex 1200hc or 2400 (external) or 9600 baud external US Robotics	135/240/730

MEMORY UPGRADING

640K memory card with 0K	$35
Intel 286 above board w/512K	320
Everex multifunction card w/ 0K RAM or 384 RAM	95/152
AT multifunction up to 1.5 meg w/0K	135
AST-6 Pak w/ 0K (multi function card)	90
AST RAM Vantage up to 3 MB w/0K RAM (AT)	250
AST AT Advantage incl. ser, par w/clock w/128K up to 1.5 MB	385
Piggyback AST AT Advantage card w/512K	320
AST RAM Page with 256K (PC) EEMS	285
AST RAM Page 286 w/512K expandable to 2 MB (EEMS) AT	419
Vega Deluxe by Video 7 with 256K	275
Tall Tree J. Laser Plus (PC) or (AT) with 0K can expand to 3 meg	410/475
Everex RAM Card (AT) can expand to 3 meg (0K)	110
Everex EMS card for XT/PC with 0K - can expand to 2 meg	95
Everex EMS multifunction card w/0K RAM	100
Everex AT EMS multifunction card w/0K memory	145
Copy II PC Option Board	89

KEYBOARDS/POWER SUPPLY

Maxiswitch AT style	$60
12 funct enhanced maxiswitch	75
5060 AT style	50
5339 keyboard-12 funct enhanc	75
135/150/180 watt	$50/60/70
200/220 watt	75/85

MOTHERBOARDS

256K motherboard w/0K - w/BIOS-8 slots	$70
640K motherboard w/0K - w/BIOS-8 slots	85
640K Turbo motherboard, 2 layer w/BIOS-8 slots	99
640K Turbo motherboard, 4 layer w/BIOS-8 slots	120
Faraday PC motherboard, 8 slots with 2 ser, 1 par, 640K on board	165
Small AT motherboard w/Bios w/0K can expand to 1 MB (1 wait state) 12 MHz	309
DTK AT motherboard w/Bios w/0K can expand to 1MB (0 wait state) 10 Mhz	300
Small AT motherboard w/Bios w/0K can expand to 4 MB (0 wait state) 12 Mhz	320

HARD & FLOPPY DISK CONTROLLER

DTC hard disk controller with cables #5160CX (RLL)	$80
DTC hard disk controller w/ cables	65
1.2 MB floppy controller with cable (XT)	69
Floppy disk controller (for 4 DR/2 DR) with cables	40/30
WD AT floppy & hard disk controller with cables	125
DTC AT floppy & hard disk controller w/cables (RLL)	169
1.2 MB floppy controller with cable (XT or AT)	75
Everex floppy & hard disk controller w/cable	119
20 or 40 meg hard card (plus development) 40 ns access time	Call

HARD & FLOPPY DRIVES

Toshiba 3½" disk drive kit (PC or AT int.) 720K/1.44 MB	$99/129
Teac 55BV/1.2 meg for AT-½ height drive or by Fujitsu	85/120/100
Fujitsu M2551A ½ height drive	75
Seagate ST225, 20 meg w/controller & cables	279
Seagate ST238, 30 meg w/RRL type controller w/cables	300
Tandon 1/2 height 10MB hard drive with controller and cables	175
Full height hard disk by Hitachi DK 511-5(42 MB) formatted	509
Full height hard disk by Vertek V185 (62MB) formatted, 28ms	690
Full height hard disk by Seagate ST 251/ST 125	395/299
Wangtec 60 meg streamer tape drive with Sysgen controller & tape	490

MONITORS/PRINTERS

Casper/Samsung	$87/79
Color or EGA monitor	249/375
NEC Multisyn/Nanao 8060S	545
Taxan 770 multi-scan	545
Citizen MSP 10/15/20	$280/350
Citizen 120D/MSP 25	165/490
Epson Printers	Call

MISCELLANEOUS

AT case/XT fliptop case	$75/33
Keyboard drawer/Computer desk w/keyboard drawer	33/69up
Logical Eprom eraser with timer (15 pcs at a time)	115
Logical Eprom eraser with timer (30 pcs at a time)	150
Logical Eprom eraser with timer (50 pcs at a time)	200
Logitech C7 mouse or 3.3 MS DOS or diskette storage box	75/85/6up

"Serving The Bay Area Since 1981"

MICROWARE EXCELTEK

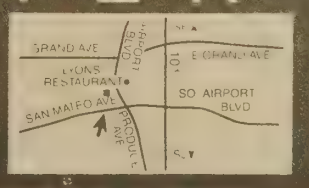
100 Produce Avenue, Unit E
South San Francisco, CA 94080
PS Airport Business Park
(corner of Airport Blvd. & San Mateo Ave.)
Take the South Airport Blvd exit off of Hwy 101
T (415) 952-5375 • Fax (415) 952-3057
Monday-Friday 9-6:30 Sat-Call first
Canadian orders call (613) 737-5937 for pricing and availability

(415) 952-5375

All Parts 100% Guaranteed

Terms: For shipping & handling charge (under 1 lb.) include $2.50 for UPS Ground, $3.50 UPS Blue, $3.50 for 1st Class Mail COD. CA residents add 6.5% sales tax.

PC/XT/AT is a registered trademark of IBM Corporation



The Zealot's Tale

By Bennett Falk

In the dead middle of a moonless night, a black-clad figure sneaked into an unlit terminal room in the computer science building of a major university. The intruder traced his way methodically among the fifty or so carrels, pausing at each only long enough to pry loose two key caps from the workstation's keyboard.

Suddenly the door was flung open and the room filled with noise and light. A campus police officer bellowed "Hold it right there!"

Seeing the only exit blocked, the intruder standing at the center of a sea of cubicles surrendered. The cop beckoned the intruder to the edge of the room and frisked him for weapons. Finding none, he ordered the intruder to empty his pockets onto the table. In addition to a wallet, some keys, and a small wide-blade screwdriver, there were dozens of key caps from terminals. He sized up the intruder, a thin, young man dressed in jeans and a black sweatshirt that had "Lukasiewicz Lives!" printed on the front in red letters. He had a scraggly beard and wore black, hightop basketball shoes.

Eventually the cop broke the silence, "Look, I've got to arrest you for just being here anyway, and you've got the right to remain silent, and all that, but would you mind telling me just what the hell is going on here?"

"It's a long story," the boy answered tentatively.

"That's okay," the cop sighed, "It's a slow night."

"Well, you see these terminals? They're all attached to a bunch of computers that use the UNIX operating system. Every day hundreds of people come in here, sit at these workstations, and use those computers. A lot of those people are going to do nothing fancier than arithmetic.

"When you do arithmetic on a UNIX system, you can use either of a pair of programs: they're named 'dc' and 'bc'. 'dc' stands for 'desk calculator', I don't have any idea what 'bc' stands for. Now why do you think there are two programs to do arithmetic?"

"I dunno, maybe they do different kinds of arithmetic."

"Nope, arithmetic is arithmetic. The important difference between the two programs is just that they let you write out the calculation you want to do in different ways."

"What are you talkin' about?"

"When you think of arithmetic, you probably think something like '2 + 2.'" For emphasis, he picked up a piece of chalk and wrote this on a blackboard.

"The '+' sign is called an 'operator' and the twos are what's being operated on, 'operands'. The common operations in arithmetic are binary operations, that is, each operator has two operands. And when you write '2 + 2', you're using something called 'infix' notation; the operator is in between its operands.

"At the '2 + 2' level the infix format probably works okay, but people who do a lot of arithmetic outgrow '2 + 2' pretty quickly. I mean, what do you do with '12 / 2 * 3'? Do you divide 12 by 2 and multiply the result by 3, or do you perform the multiplication first and so divide 12 by 6?"

"I don't know," the cop replied.

"Well, neither do most people. To avoid confusion, infix formulas usually have to be parenthesized so the order of operations is unambiguous. Depending on what you meant, you could write either (12 / 2) * 3 or 12 / (2 * 3)."

"Okay, fine."

"That's easy for you to say, but it doesn't take much for a formula to get very complicated, and somebody with a lot of arithemetic to do just might wind up spending most of their time checking the placement of the parens.

"So there's another way to write things out; it's called 'Polish notation' because it was first proposed by a Polish mathematician, a guy named Jan Lukasiewicz." He gestured proudly at the slogan on his shirt.

"Standard Polish notation uses the operator as a prefix for the operands. What is written as '2 + 2' in infix, becomes '+ 2 2' in Polish or 'prefix' notation. Polish notation works pretty well for symbolic logic, but most people who try to do arithmetic in Polish notation prefer the 'reverse Polish' or 'postfix' style in which the operands are listed first followed by the operators. In reverse Polish notation '2 + 2' becomes '2 2 +'.

"If you're used to infix notation, Polish may be a little confusing. It might be helpful to imagine that you're stacking the numbers. When you're reading something in reverse Polish, each new operand becomes the top of a stack and everything already on the stack just gets pushed down a notch. The operators take what they need from the top of the stack, perform whatever function they're supposed to perform and then push the result back on to the stack.

"Now the absolutely most wonderful thing about reverse Polish notation is that you don't need to parenthesize anything! '(12 / 2) * 3' becomes '12 2 / 3 *' and '12 / (2 * 3)' becomes '12 2 3 */'.

"Take '12 2 / 3 *', for example. You read along and first push 12 on the stack and then 2 and then you read '/', the division operator. Well, you know you need two numbers to perform that operation, so you just take the two top numbers off the stack, do the division and then push the result back on the stack. Next up is a '3' and that's an operand so you push that onto the stack. Then comes the multiplication operator: that requires two operands, so you take the top two values on the stack, perform the multiplication, and then push the result on the stack. In the end you have one number on the stack which is the answer."

"This is giving me a headache," the cop complained.

"Well, don't make it harder than it needs to be. You don't have to do the calculations, in fact, you don't even have to think about operators and operands. All you have to do is enter things in the right order, and after all, you'd have to do that regardless of which notation you were writing in."

"Yeah, I suppose, but does anybody really use this Polish stuff?"

The intruder tried to suppress his aggravation. "Lots of people use it, and most of them feel like it's a more natural way to write out arithmetic than infix notation. Hewlett-Packard has done very well making hand-held calculators that use Polish notation, and it's even embodied in some programming languages, like FORTH.

"The problem is that there isn't a single calculator that reads both notations, and the infix style is dying really hard." The cop noticed that the intruder was beginning to look a little wild-eyed.

"Take 'dc' and 'bc', for example, 'dc', the one that uses reverse Polish notation, is a true calculator: it lets you do arithmetic with arbitrarily large numbers, like with 500 or so digits. 'bc', on the other hand, isn't really a calculator at all: it's just a compiler that takes statements in infix notation, translates them into reverse Polish, and then passes the translations to dc to be executed."

The intruder's voice took on an impassioned edge: "Now don't get me wrong. 'bc' is a very good compiler. It works a lot like a programming language for arithmetic. You can use it to write formulas and store them for use later. You can do 'if' tests, and 'for' loops and all sorts of nifty things. In fact, you can use it to teach yourself Polish notation by invoking it with the 'compile only' option ('bc -c') and reading the output.

"The trouble is that 'bc' can also be used as an excuse to put off learning Polish notation. And just between you and me, I think someone out there is manipulating the documentation so there's less information about 'dc' for the casual user."

The young man's voice dropped suddenly to a conspiratorial whisper: "Did you know that the section on 'bc' in the Xenix User's Guide doesn't even mention the fact that 'dc' does all the real calculating work?"

"Uh, no, I didn't know that," the cop said evenly.

"Well, there you are," the intruder gestured triumphantly, "It was the only way. I had to do it."

"Do what?" The cop appeared to have forgotten that he was making an arrest. He toyed idly with the key caps on the table and noticed for the first time that they were all either left or right parens.

"The keys, the keys! Without those keys everyone will have to use 'dc'! 'bc' will be worthless. Think of the time that will be saved!" □

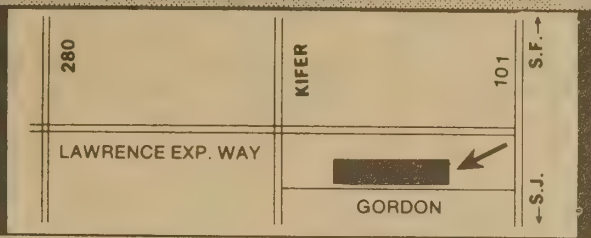
Copyright © 1988 by Bennett Falk. *Bennett Falk lives in the Bay Area and works for Sybase, Inc. He writes whenever he can and hopes for the best.*

Technoland Computer

2960 Gordon Ave., Santa Clara, CA 95051

(408) 732-2244

OPEN 7 DAYS
MON.-FRI. 10-8 PM
SAT.-SUN. 10-5 PM
PRICES SUBJECT TO CHANGE WITHOUT NOTICE
Exp. 5/9/88



TOWER CASE

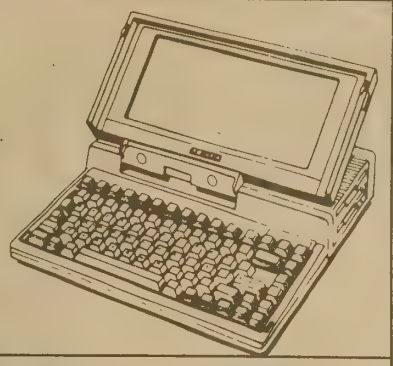
WITH 275W POWER SUPPLY

SALE $299

TOSHIBA T1000

- IBM® PC compatibility in less than a 10 lb. package.
- All the power of a desktop PC.
- Fully portable; runs on batteries and AC
- Sharp, clear LCD display.
- Outstanding price and performance.

$795



Complete 12 MHz 0 Wait AT $990

COMPLETE 10 MHz 286 SYSTEM

- 10MHz 0 Wait
- 512K exp. to 1MB, 100NS RAM
- Teac 1.2MB Floppy
- AT Style Keyboard
- HDD/FDD Controller
- HI-RES Monitor w/Graphic Card
- 1 Yr. Warranty Parts/Labor

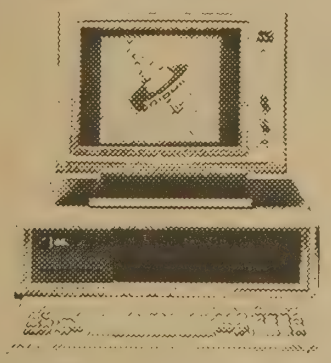
$895

Complete 8MHz XT.....$515

COMPLETE 10 MHz 0 WAIT XT

- 10 MHz 640K on Board
- 360 Floppy Drive
- 4-Ply Motherboard
- AT Style Keyboard
- Hi-Res Mono Monitor
- Mono Graphic Printer Card
- 1 Yr. Warranty

$535



The Best Priced 16MHz 80386

- Everex EGA Card Deluxe 640/480
- 1 MB on Board Exp. to 2MB
- Parallel & Serial Ports
- WA2 FDD/HDD Controller
- Teac 1.2MB Floppy Drive
- 101 Enhanced Keyboard

$1999

COME VISIT OUR 6000 SQ' RETAIL SHOWROOM

CAST

87 MB, 28MS, 5¼-inch Half-Height Hard Drive

NEW $699

Sale! Sale!
OKI-Membrane
101 Keyboard
$65 cash

Sale! Sale!
OKI-Membrane
84 Keyboard
$45 cash

HARD DISK DRIVE

ST 277R
65MB, 38MS....$519

ST 251
40 MB, 38MS...$409

ST 4053 Full Height
40 MB, 28MS...$509

OMTI 8627 RLL
HDC/FDC AT.....$199

MONITOR

THOMPSON VGA	$435
THOMPSON 15" MONO	99
Nanao 8060S Flexscan	549
Mitsubishi Diamond Scan	475
Sony 1302	595
Casper EGA	359
Samsung 1252G	79
Quimax 14"	129
19" Mono (1280x960) Monitor & Card	1399

PRINTER

Epson FX86e	$299
Epson LQ2500	899
Epson EX800	429
Epson LQ 850	529
Epson LQ 1050	699
Epson LQ 500 New!	369
Epson FX286e	449
Star NX1000	189
Panasonic 1080i II	189
Okidata 192 Plus	339
Panasonic 1091 II	209
Ricoh Daisy Wheel	229

GRAPHIC CARD

Paradise VGA Plus
$275
860x600

Genoa Super EGA w/Gem	$199
Vega VGA	289
Paradise EGA	179
EGA Wizard/Deluxe	199
Everex VGA Card	259
Everex Monographics 132 col	109
Color Graphic Card	69

NEC P2200
(170,80,24)
$345

NEC P6
(240,80,24)
$449

Hewlett Packard
LASER JET II
$1649
cash only

OKIDATA 292
(240,80,9)
$479

Sale! Sale! Sale!

ACER LP 75 LASER PRINTER

- Fully HP Laser Printer Compatible
- 300 dpi full-page graphic capability
- 1.5 MB Exp. to 2 MB
- Capable of handling legal-size paper without additional tray
- All HP style fonts cartridges—$179 or less

$1444

THOMSON Ultrascan $435
VGA Monitor Res 800x560

NEC—Multisync II $585
Res 800x560

THOMSON Dualscan $99
15" Mono Monitor Res 720x348

Metal Keyboard Case $24.99
Reg. 29.99

AC Power Surge Center $15.95
Reg. 18.95

CPU Stand $24.99
Reg. 29.99

Logitech Serial Mouse C-7 $69
Reg. 79

Electronic Privacy 101

By Brock N. Meeks

Electronic privacy rights. They lie in a grey area of the law. The Electronic Communications Privacy Act of 1986 went a long way in helping to define what constitutes an invasion of electronic privacy. But that's where it stops. As yet, no case has come to court under the ECPA. Until now.

In March of this year, a BBS user filed a lawsuit in Indiana federal court under the ECPA. Linda Thompson, a third year law student (and sysop) filed her suit against the Bob Predaina, sysop of the Professional's Choice BBS. Thompson alleges that Predaina took several of her private messages — which she had deleted from the system — and "opened" them to public viewing.

"I logged on one day to find that several private messages I had deleted suddenly appeared in an open public conference," Thompson said. "I called, figuring something went wrong. He (Predaina) refused to talk about it. Then several days later, I find some of my private electronic mail had also been 'opened' and spread around. I was dumbfounded, to say the least."

If all that sounds like the perfect equation for a lawsuit, it is. "I couldn't believe there wasn't some kind of law against this sort of thing," Thompson says. "I went looking and found that the ECPA covered just this sort of action. I didn't even know it existed before this."

And I venture to guess that the majority of BBS sysops don't realize it exists, either; but sysops had better take note: if they mess around with someone's private messages, making them public, they are going to be held accountable to the full extent of the law.

ECPA 101

The ECPA, which went into effect January 1, 1987, provides federal protection of computer communications, both in transmission and while in storage on a remote host's disk. This was an important statute because it set the ground rules for protecting your private electronic communications; your electronic communications *do not* have any federal constitutional privacy protection. Why? Because you there is no "objective reasonable expectation of privacy" when a third party (in this case, a sysop) has access to those communications.

Copyright © 1988, by Brock N. Meeks. Brock Meeks is a San Diego based author and columnist. He regularly invests in 25 cent stamps.

Sysops had better take note: if they mess around with someone's private messages, making them public, they are going to be held accountable to the full extent of the law.

"Constitutional privacy is doesn't hold for private electronic mail if a BBS operator or an employee of a commercial computer service (like the WELL) readily have access to and look at and read the private electronic correspondence," says Mark Rottenburg, general counsel to the U.S. Senate subcommittee for Technology Law.

It should be common knowledge to anyone familiar with how a BBS, or other online service, works that the system operator has ready access to read *anything* on that system. Such is the nature of the medium. However, "This is where ECPA comes in to play," says Rottenburg. "It fills this 'knothole' by saying such private computer communications are given statutory privacy protection."

Specifically, this protection says that a sysop, although able to read your private messages, *cannot*, under penalty of law, make the contents of those messages known to anyone other than the recipient or "authorized agent." (An authorized agent being someone that you've told the sysop is "OK" to see your mail. This might come into play if you're going to be gone for an extended period of time, and you want your "agent" to check your mail for you.)

It should be noted, however, that the ECPA provides for expectations regarding governmental investigations. Given proper authority, and an exacting search warrant, a sysop must provide the proper authorities with copies of any correspondence, private or otherwise, as outlined in a search warrant.

Although it's ethically unacceptable for a sysop of any computer system to rummage through your private files, it happens. Either during routine file maintenance or by deliberate action, sysops do read private messages. Some are open about it. "I read every piece of mail that goes through my system," several sysops have told me. Their defense: "I want to make sure nothing illegal is going on." Well, OK. I don't like that attitude, and personally, I wouldn't participate on that type of system, but it's an arguable point. (I might add that on commercial systems, I've never heard this line of reasoning from management; however, I do have a 20K file of "cases" where people have given me documented proof that their private mail is being read on large commercial systems.)

Bottom line here? Nothing is safe from the sysop. But if that sysop discloses any of what he or she sees, it's grounds for a major league privacy violation. Such are the grounds for Thompson's case I mentioned earlier.

"The message and intent of the ECPA is clear: You can't mess with a person's electronic privacy," says Robert Smith, publisher of the Washington, D.C.-based *Privacy Journal*.

Unless, of course, you happen to be a corporation.

Corporate Privacy 101

Where do the privacy rights of an individual stop and the rights of the corporation begin? As soon as you step through that door at 8 am.

"First of all, please keep in mind that ECPA extends the centuries-old postal privacy concepts and more recent voice wiretap privacy principles to data transmission. Those traditional communications privacy laws *don't include* office mailrooms or corporate electronic mail systems," says Mike Cavanagh, executive director of the Washington, D.C.-based Electronic Mail Association, and one of the ECPA's coauthors.

Imagine, for a moment, that you're heading up a movement to unionize your workplace. The company has branch offices in several parts of the country, and you've been spearheading the effort, via the company's electronic communications network. Via a series of extensive — private — Email exchanges, you've developed an ad hoc

Let MicroAge®

Serve All Your Computing Needs . . .

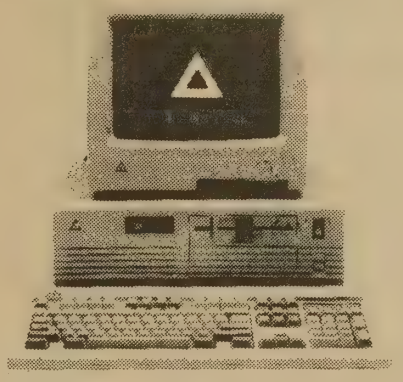
THE NEW

LEADING EDGE®

SUPER SPEED D2 COMPUTER IN STOCK NOW

Featuring:

- 80286 (6, 8 and 10 MHz)
- 1.2 MB disk drive
- Six full-sized expansion slots
- Parallel and serial ports
- 640K RAM expandable to 1MB
- EGA, CGA, MDA and Hercules graphics emulation with automatic mode switching
- 101-key keyboard
- MS-DOS 3.2 and GW BASIC 3.2
- 65 Mg 28 ms access



Leading Edge and Logo and Model "D" are registered trademarks and Leading Edge, Infinite Memory System, Infinite Memory Drive, Infinite Memory Cartridge and IBM Compatibility Logo are trademarks of Leading Edge Products, Inc. IBM is a registered trademark of International Business Machines Corp. Bernoulli Technology is a trademark of Iomega Corp.

$1895 **Call for Best Price on Leading Edge Model D**

Clearance Sale!

Systems

IBM PS/2 Model 25, 1 Floppy	$965*
IBM PS/2 Model 30, 2 Floppies/20MB	$1174*/1699*
IBM PS/2 Model 50, 20 MB	$2495*
IBM PS/2 Model 80, 40 MB	$4295*
Compaq 286 Model 1	$1695*
Compaq 386/20 60MB	$5895*

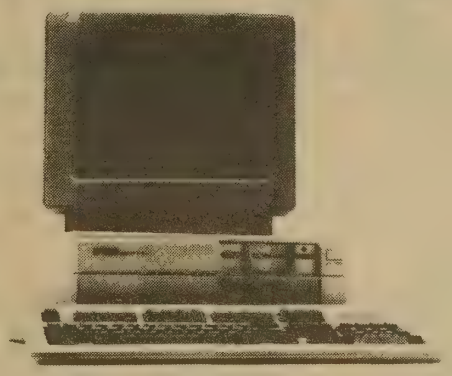
*Monitor Not Included

Printers

Epson LX800	$199
Epson FX286E	$475
Epson LQ500	$369
HP LaserJet Series II	$1695
HP DeskJet	$785
IBM ProPrinter XL	$575
IBM ProPrinter 24XL	$745
IBM ProPrinter II	$375

Laptops

Toshiba 1200	$2400



Epson Equity II Plus in stock now

- 80286 Microprocessor, 8/10 MHz switch selectable clock speeds
- 640K on main board/clock calendar
- IBM compatible
- Parallel/serial ports
- 6 full length expansion slots
- AT-style detachable keyboard
- 1 Floppy
- Monitor and Card Optional

$1085

Authorized Dealer & Service Center

EPSON

IBM

AT&T Information Systems

COMPAQ®

HEWLETT PACKARD

LEADING EDGE AUTHORIZED RETAIL DEALER

Don't take a chance in the gray market!

Call us first!

MicroAge®

5690 Stoneridge Dr.
Hacienda Business Park
Pleasanton, CA 94566
(415) 463-2263

Open: Mon-Fri 10 to 6
Saturday 10 to 5

group of union organizers at each location. So far, so good.

With a carefully thought out strategy, you've decided to press the issue, simultaneously, during a meeting with on-site management personnel. Timing is crucial. The big day arrives and you stride into the meeting confident that your strategy is sound, and that you've got the upper hand in the negotiations. But something happens. Management blocks you at every turn. Your brilliant presentation is summarily destroyed. It's as if management had been expertly briefed on your every move. Shades of the infamous Carter/Ford debates run through your head. You've been defeated.

Back in the office, you dash off several Email messages. The response from your colleagues around the country is the same: crushing defeat. The story is the same: it's as if management knew exactly what you were going to propose. And in truth, they did.

Unknown to you, management had requested the company's network manager to print out all your "private" electronic correspondence, all your private files. Your electronic privacy was violated. Or was it?

Just how much privacy do you have when it comes to a corporate communications systems? "Zero," says Jerry Berman, general counsel for the ACLU. "There are no privacy protections for these internal communications systems. Even if that system extends nationwide." As to the hypothetical case of the union organizer? Berman says: "How many union organizers keep their files integrated into their own files in a manual file system? Where the boss can come in, rifle the filing cabinet, and find out what's going on? A union organizer that is keeping his protest files and organizing files on the company computer is a dope."

Anyone that believes there is some kind of privacy rights for their files on a company system is a dope. In the corporate world, there is no protection for your private files. I call it the "Ollie North Syndrome." Doubtless, you can think of more colorful language.

And by extension: Anyone that believes there is some kind of privacy rights for their files on a company system is a dope. In the corporate world, there is no protection for your private files. I call it the "Ollie North Syndrome." Doubtless, you can think of more colorful language.

"The ECPA doesn't provide protection in the private sector," says Berman. "That doesn't mean there shouldn't be some kind of protection. But to get that language into the ECPA would have killed the bill. The ECPA went up to the water's edge (regarding protections for electronic communications in the private sector) and stopped.

"Employees should realize they have no such protections. They shouldn't be operating under the assumption that there is a right of privacy."

Privacy 201

Where does this leave our precious privacy? In the public sector, as in BBSs and systems like the WELL, pretty straightforward. Sysops have to realize that BBSs aren't just a "hobby" anymore; there's a good deal of responsibility that goes with handling *any* communications tagged with the lable "private." Violate that privacy, and you could find yourself on the receiving end of a federal lawsuit.

"I think we want to be very careful about saying that new technologies like electronic mail should be under an entirely different regulatory scheme than traditional ways of doing things," says Cavanagh. "I don't think in many instances we'll have a good case for that, and it could damage our efforts to achieve consistent treatment, which is what ECPA is all about."

The Thompson case, if it is decided in the courts (at press time, there seems to be a feeling between the parties involved that an out of court settlement will be reached) will put a precedent on the books, and "teeth" into the ECPA.

And if you're in a corporate environment? You're out of luck. "The best thing you can do is try and get your company to set up some kind of corporate guidelines with respect to electronic privacy," says Berman.

Either that or keep all your private correspondence in your briefcase, not on the company computer.

The bottom line is that electronic communications are still rather fragile. And like it or not, the best insurance policy for keeping your correspondence private is a 25 cent stamp. □

Communication & Industrial Cards for XT, AT

IEEE-488 Card
B.S. Card (3270 emulation)
SDLC Card (Synchronous Data Link Control Communication)
ADDA-12 Card
SUPER ADDA-8 Card
MULTI D/A-8 Card
MULTI D/A-12 Card
RS-422 Card
RS-232 REPEATER
RS-232/422 CONVERTER
MULTI-SERIAL-8
(run w/MultiLink or run w/Microsoft/SCO/XENIX)
8255 I/O Card
INDUSTRIAL I/O Card (16xRelay OUT, 16xPhoto Couple IN)
UNIVERSAL Card
(w/decoding circuit)
PC-EXTENSION UNIT
(w/3x62 Pin Slot)

General Purpose Card

AT MotherBoard(12MHz,OK)	$309
BABY AT(12MHz,4M EMS,OK)	289
PC GAME I/O Card	15
PC PRINTER Card	15
PC RS-232 Card	21
MONO GRAPHIC/PRINTER	44
PC Driver Card	21
AT Parallel/Serial Card	48
PC 512K RAM Card	21
AT 128K RAM Card	52
AT 2M RAM Card	79
MODEM -- 1200 BAUD(INT.)	65
MODEM -- 2400 BAUD(INT.)	148

* call for more information *
prices subject to change
H&R Int'nal Co. (408)733-3026
21060 Homestead Rd, Suite 202
Cupertino, CA.95014

The A·C·A·Demy
provides CAD services for beginning, intermediate and advanced CAD professionals. On-site training is provided for MS-DOS, AutoCAD, A/E/C, and AutoLISP, or you may choose scheduled classes in our Sausalito lab. For more information, call us at
The A·C·A·Demy
(415) 331-9466

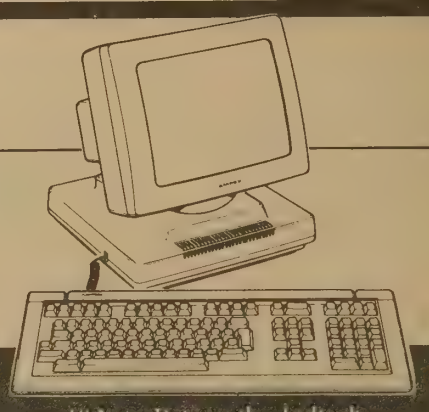
AMPEX 220 and 230 PLUS

220
- DEC VT220 compatible
- 14" nonglare amber, green or white flat screen
- Tilt and swivel display
- 7 x 11 dot matrix in 9 x 12 field
- 80 or 132 column display
- Bold, blink, underline, reverse video
- Two-year warranty

Call for Price

230 PLUS
- 14" nonglare amber, green or white flat screen
- 132 or 80 column display
- Extra fast screen refresh/dynamic focus
- Four 80 column display pages standard
- 16 programmable function keys
- Emulations - ADDS, Hazeltine, Televideo and Wyse
- 7 x 11 dot matrix in 9 x 12 field

Call for Price



Cypress Distributing Company
560 Lincoln Avenue, San Jose, CA 95126, (408) 297-9800
22186 Rim Pointe, El Torro, CA 92630, (714) 770-7244
2670 Truxel Road, Sacramento, CA 95833, (916) 646-1955
10 Net Datasouth Indtech
C. Itoh Century Data Systems Packard Bell
Personal Computer Products Panasonic Seikosha Fujitsu
Moniterm Star Micronics Mitsubishi Rutishauser Canon

DEALERS & CONSULTANTS ONLY

Please Call For Complete Confidential Price List

IBM

PS II Model 25 Mono/Color. $969/1195
PS II M.25 M/C + 20 MB HD .1395/1650
PS II Model 30 2 Dr. + 20 MB . .**1695**
PS II Model 30-002/021 . . . . . .1230/1695
PS II Model 50-021 2595
PS II Model 60 44MB/70MB . .*3195/3895
PS II Model 80-115 20MHz. 7895
PS II M.80 44MB/70MB **4295/4895
AT 339 (8MHz, 512K, 30 MB) . . . . . .Call
AT 068 (6MHz, 256K). 2495
XT 2 DR. 256K. 1295
Mono Display 8503/XT STYLE. . .189/225
Color Display 8512 439
EGA Disp. 8513/XT STYLE 510/595
Ext. Drive F/PS2 (5¼). 285
Pro Printer II/XL 369/545
Pro Printer X24/XL24 . . . . . .545/695
Quiet Writer II/III 965/1135*
IBM DOS 3.3 (min 5) 85

Call For All Other Computer Products
*QUANTITY DISCOUNT AVAILABLE

Seagate

SEAGATE HARD DRIVES
20MB/30MB W/Controller. $269/289
30MB/40MB (4038/4051). 425/490
40MB (ST 251)/65 MB (277N) . . .379/565
80MB (4096)/80MB (277R) *745/599

MINISCRIBE
20MB/30MB RLL W/Cont.. . . . . .$279/299
40MB (3650)/40MB (3053) 319/525
40MB (6053) Full Height 555
80MB Full Height (6085) 759

HARD CARDS
20MB/30MB for XT $345/399
40MB CARD F/XT 40 MSC. 499
20MB/30MB for PS/2 . . . . . .399/435

MISCELLANEOUS
130MB Maxtor 28Mlsecond $1495
COMPAQ PORTABLE 20 MB 495
COMPAQ 40/60 MB F/DP386. . . .695/895
10/20 MB IBM HARD DISK 145/195

COMPAQ

DESKPRO MODELS
386/20 MHz 60 MB HD. $5295
386/20 MHz 130 MB HD 6695
386 40 MB 16 MHz Factory 3895
**386 130MB 16 MHz 5495
286 Model 1. 1695
286 640K, 20MB/40MB HD . . .2195/2395
286 Model 40 (Factory) 2750
**386/20 MHz 300 MB . . . . . .IN STOCK
DESKPRO 2 DR. 256K/20 MB .1095/1395

PORTABLES
***NEW PORTABLE 386/40MB . . .$5445
***NEW PORTABLE 386/100 MB . .6899
II Model 4 (Factory/Upgrade) . . .2595/2395
II Model 2 2dr., 256K (80286) 1895
286 640K, 20 MB HD, 10 MB tape
B.U. 2995
III Model 20MB 3395
III Model 40MB 3895
Compaq Amber/Green 195
COMPAQ VGA MONITOR 595
COMPAG EGA/VGA ADAPTER .325/425
Compaq DOS 3.3 MIN. 5 84

CALL ON MEMORY PRODUCTS AND OTHER COMPAQ PRODUCTS
Quantity Discount Available

Dealers & Consultants Only

Corporate & Retail Customers Call For Quotes

intel

8087-3 XT/80287-6 AT. $105/160
8087-2 XT/80287-8 AT 145/249
80287-10 AT 10MHz. 289
80387-16 for 80-386. 455
80387-20 Base Systems 725

OKIDATA

182/182S 120 cps, 30 nlq $225/269
192+/193+ 200 cps, 40 nlq. 325/409
ML292E/293E 200 cps, 100 nlq. . .359/489
ML393/393 Color 450 cps 945/1029
ML294/2410 . . . . . .737/1695
Lazer Line 6. 1299

IRWIN TAPE BACK UP

10 MB. Inter./External $255/379
20 MB. Inter./External 325/455
40 MB. Inter./External 389/535
Call for PS/2 Tape Back Up Units
Call for Archive, Tecmar, Sysgen

TOSHIBA

321SL (216CPS). $465
341SL (216CPS) 645
351-SX/351-2 COLOR 995/1019
Toshiba T1000/1100. . . . . .769/1450
T1200/T3120 . . . . . .2295/2950
T3200/T5100 . . . . . .3675/4995
TOSHIBA MODEM/COMPATIBLE.279/249

HP

Laser Series II. . . . . .$VERY LOW
*DESK JET NEW 250 CPS $695
1MB Mem. Expansion 339
2MB Mem. Expansion 639
HP Plotter 7475A 1395
HP Scanjet Scanner w/ Int. 1395

NEC

MULTISPEED EL/HD $1455/2299
MULTISYNC II/PLUS. 565/875
MULTISYNC XL 20". 1495
LC860+/LC890 . . . . . .1899/3295
P760/P2200 . . . . . .599/333

LOTUS 1-2-3 $289 ***LOTUS SYMPHONY 3½" $259***

D-DATA

One stop shopping for dealers & consultants. We also carry NEC • AST • HERCULES • DRAMS • MODEMS • CITIZEN • MICROPOLIS • SONY • MICROSOFT • SAMSUNG

D-DATA
4742 Woodman Avenue
Sherman Oaks, CA 91423
(818) 905-0994 FAX 8189058869

master charge VISA

Service charge on all credit card purchases.

Macro Economics

Aids For The Connectivity-Minded Spreadsheet Warrior

By Robert Grant Beauchamp

The task of a spreadsheet user is not an easy one, folks. Faced with designing complex spreadsheets, complicated formulas, repetitive number crunching, the specter of inaccuracy, and the same old format every day, anything, *anything* that makes this job easier is extremely welcome. But to add the further indignity of having to import someone else's spreadsheet data from a different program on a different machine can almost be too much. You can imagine the gallant *Excel* spreadsheet warrior marching down the office hallway into Joe Lotus' office demanding to know how he came up with *that* one. "Oh, I created a macro. It's really simple." (He's lying.)

Is this what the information age was supposed to be all about?

If you have been using Microsoft *Excel* for the Macintosh, you're probably convinced that it's the best spreadsheet available if not the best application available for the Mac. And if you have to deal regularly with the DOS world in either home or office, you've also been holding your ground against the monumental tide of spreadsheets now flooding the DOS market.

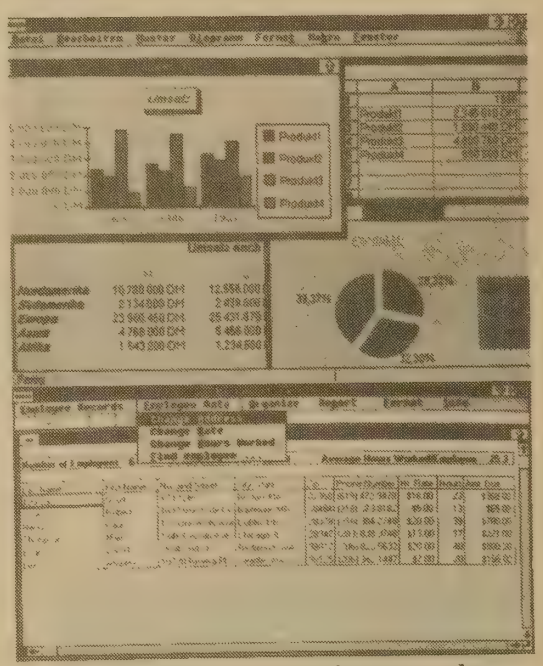
Converting files from spreadsheets created on a PC for use on a Mac is relatively simple using a network solution such as TOPS from Sun Microsystems. But this still leaves the problem that more than one spreadsheet is being used — and that means twice the effort in learning how to use the applications, designing your spreadsheets and creating macros to make the work go faster. The good news for those who use *Excel* on the Mac and must connect to DOS machines is that *Excel* is now available on the PC.

Excel For The PC

In creating the new *Excel* for the PC, the developers at Microsoft weren't satisfied with creating a pale imitation of the Macintosh spreadsheet. Using the new Microsoft *Windows* interface, they have created a spreadsheet the like of which has never been seen on either the PC or the Mac. Some of the features might even make the loyal Mac user wish they had a new IBM PS/2. Well, maybe not a *loyal* Mac user.

Like *Excel* for the Macintosh, the PC version offers a minimal recalculation feature that reduces the time a spreadsheet takes to recalculate by only calculating those cells affected by the changes made by the user. This saves time over the usual method of redoing every calculation even when you want to see the impact of a few minor changes.

Thanks to *Windows*, *Excel* for the PC shares another major similarity with *Excel* for the Mac: the graphical interface. The graphical interface allows for a more readable spreadsheet, the addition of various fonts and type styles, rows that can vary in height, print preview options, and high quality output onto laser printers.



Excel for the PC is a radically new package with well-designed links between the package's components, including database, spreadsheet, and graphic functions.

The *Windows* interface also allows for the creative use of color. Your books can literally be "in the red" by assigning red to all negative numbers. Background shading can also be used to emphasize the most important data on your spreadsheet.

Excel for the PC takes a giant leap for spreadsheets by offering the ability to show multiple sheets on the screen at one time and link them together. To link spreadsheets, all a user has to do is point to the desired data in another window. This linking goes a long way in creating three-dimensional models.

Along with providing a sheet size of 256 columns by 16,384 rows, enough to satisfy the most Homeric of spreadsheet epics, *Excel* for the PC also offers built-in auditing features that help to prevent a small error from becoming a big problem.

Excel for the PC currently runs on *Windows 2.03* and *Windows 386*. Users who purchase *Excel* for the PC now will be able to upgrade to the OS/2 Presentation Manager version, when it is released, for $50. If you do not own *Windows*, *Excel* comes with a runtime version of *Windows* which will enable you to run *Excel* right out of the box.

PC Excel's graphical interface allows for a more readable spreadsheet, the addition of various fonts and type styles, rows that can vary in height, print preview options, and high quality output onto laser printers.

Macros

Macros are said to be the spreadsheet user's best friend. Designed to save time by recording a set of commands and then reducing them to a few keystrokes, macros can also take a lot of time to program and many users don't bother. With *Excel* for the PC, however, programming macros is made easier. Its one-step macro recorder automatically makes a macro from the user's keystrokes. It also makes those macros available to other spreadsheets by letting them be copied from one sheet to another.

For the serious macro user, however, the macro packages to get are *101 Macros For Excel* and *101 Macros For Excel-PC* from MacroPac International. MacroPac is almost legendary for its macro packages, which cover a wide variety of spreadsheet tasks. The documentation for each package gives you a detailed explanation of what a macro is and how it works. Each package also comes with a disk filled with macros so your programming work is minimal.

The macros found in the two *Excel* packages include macros for cursor control, display and window control, editing, database and charting and a number of miscellaneous macros including biorhythms and slide shows. The packages, of course, include calculation, protection and cell identification macros, as well as formula, table, printing and saving macros.

Templates

If you need the power of a spreadsheet but don't have the desire or inclination to create your own worksheets, then you should consider purchas-

We have the BEST deals & BEST service in the Bay Area ! !

Hardware Specials

Hard Drives

PL 30 HD	$ 629
PL 30 Turbo HD	$ 749
PL 50 Turbo HD	$ 975
PL Infinity HD	$ 979
10 Mb Floppy disk	$ 18
PL 30i HD for SE	$ 687
with ext. drive case for internal floppy drive	
PL CDC 90i for II	$1275
16.4 ms access time	
PL 100i for Mac II	$ 1295

Memory Upgrades

128K -> 512K	$ 120.00
512Ke -> 1 Meg	$ 149.95
512Ke -> 1 Meg with SCSI Port	$ 209.95
512Ke -> 2 Meg	$ 359.95
512Ke -> 2 Meg with SCSI Port	$ 409.95
1 Meg -> 2 Meg for Mac Plus	$ 279.95
1 Meg Simm	$ 279.00
SCSI Port	$ 95.00

Unbeatable Prices !

We will BEAT any advertised price in the Bay Area.*

* Manager approval required.

4th Dimension	424.00
Adobe Illustrator	318.00
Beyond Dark Castle	26.00
Focal Point	308.00
FreeHand - NEW	288.00
MacInTax Federal	58.00
MacInTax - CA	33.00
MS Word 3.02	230.00
PageMaker 2.0a	308.00
Quark Xpress	479.00
Reports - NEW	49.00
Seikosha Printer for Mac Computers	249.00
TOPS - Mac	118.00
WriteNow	89.00

AST Turbo Laser / PS

PostScript - Adobe's Version 47, 35 Adobe Fonts, 3 Mb RAM, 600,000 page engine, 250 sheet input & output, Write White / Blacker Blacks **Retail $ 5495**

NOW IN STOCK AT A SPECIAL PRICE !

AST Turbo Laser / PS **$ 3295 !** INCLUDES TONER

SOFTWARE

4th Dimension	424
Adobe Laser Fonts	25% off
Adobe Illustrator	318
Apache Strike	29.95
Beyond Dark Castle	26
Business Class	30.95
Canvas	127
Click Art Volumes	33 each
Comic Strip Factory	51
Copy II Mac 7.0	22
Cricket Draw	177
DataDesk Professional	309
Disk Express	32
Disk Fit	52
Disk Top 3.0	39
Double Helix II	371
Draw Again SAMS	95
Eureaka Solver	139
Excel	228
Falcon F-16	34
FastForm Const. Kit	89
FileMaker Plus	164
Focal Point	57
FreeHand	289
Insight A/P, A/R, G/L	399ea
Buy A/R & Get A/P FREE !	
JAM Session	34
LapLink - links PC & Mac	79
LightSpeed Pascal	87
LightSpeed C 2.11	116
MacInTax Federal - 87'	56
MacInTax - California	33
MacLink Plus	139
MacMoney 3.0 - NEW	75
MapMaker 3.0	209
PageMaker 2.0a ($15 for 3.0)	385
PixelPaint	297
QUED/M	91
QuicKeys	59
ReadySetGo 4	297
REPORTS	49
Stepping Out	59
Suit Case 1.2	39
SuperLaserSpool	99
ThunderScan w/ new version of software,hardware	197
TOPS (Mac)	134
TOPS FlashCard	189
TOPS DOS	125
VideoWorks II	127
Word 3.02 (not a TYPO !)	228
WordPerfect	179
Works - MS	177
Write - MS	129
WriteNow	89

HUNDREDS more items in stock!! Call for complete price list.

HARDWARE

128K -> 512K Upgrae	120
Avatex Modems	
1200HC-100% Hayes	116
2400-100% Hayes	236
Prometheus 2400G Modem	269
Telebit 19.2KBaud Modem	945
AST Turbo Laser PS - NEW	
3 Mb, can use with Mac & IBM	
FAST, GREAT PRICE	3299
A+ Optical Mouse	75
A+ Optical Mouse - ADB	96
Chinon 800K Drive	179
DataDesk Keyboard	139
Dove 512K -> 1Meg Upg.	150
512K -> 1 Meg w/SCSI	210
512K -> 2 Meg	360
512K -> 2 Meg w/SCSI	410
1 Meg -> 2 Meg (for Plus)	270
SCSI Port	95
2S CMOS SIMMs (2)	558
LaserView Monitors	CALL
Mac 286 Card for II	CALL
Mac IRMA (II,SE)	CALL
MacRecorder - NEW	139
NetModem	468
NetSerial	309
Passport MIDI Interface	75
PL 30 HD-Great Price	629
PL 30 Turbo HD	779
PL 50 Turbo HD	995
PL 90 CDC Int. for II	1375
PL 30i HD for SE w/FREE case for your int. floppy dr.	697
Panasonic 1080 i with special Macintosh Card	295
QMS PS 810 Laser Printer	3985
Radius Accelerator	749
w/68881	1049
Radius FPD	1445
Radius 2-Page Display	1895
SE Silencer	49
Seikosha Printer for Mac	249
System Saver Fan	70
ThunderScan	197
Turbo Mouse (+/SE)	90

SONY DISKS

3.5" SS/DD (bulk)	1.09 ea
3.5" SS/DD (10 Pak)	12.00
3.5" DS/DD (10 Pak)	16.50
3.5" DS/DD (bulk)	1.39

Misc. Items

HyperCard Book	26
HyperTalk Book	20
Mac Carrying Case- fits all, with room on top for HD.	65
ImageWriter Case	42
Mac Security Kit - fits all	35
Surge Suppressor	19

MUST BRING IN AD FOR SPECIAL

M.A.C.
Modern Accessories for Computers
Macintosh Everything Computer Store

800-BUY-A-MAC Order Line for US and CA (Toll Free !) (415) 644-0584 FAX
(415) 644-0516 Customer Service & Technical Support
(415) 644-0546 Corporate, Gov't & International Dealer Purchase - Bid Desk
(415) 644-0585 BBS (PD software, 300-1200-2400 Baud)

Hours Mon-Sat 10-6 PM

2156A University Ave, Berkeley, CA 94704 *VISA / MC / COD / PO's ARE WELCOME !*
WE SHIP DOMESTICALLY / INTERNATIONALLY FAST ! *DEALER PRICING AVAILABLE*

ing pre-made templates. Templates are set up with ready-made calculations and formulas. All you do is plug in the numbers. Financial Calculators from MicroTemp provide an excellent group of templates for *Excel* for the Mac to aid you in your personal, business, real estate and financial planning tasks.

MicroTemp's templates include monthly and quarterly budget and cash flow calculators, real estate investment calculators for capitalization rate and even one for a buyers closing statement. Financial planning calculators include templates for straight line depreciation and double declining balance depreciation. There are profitability, solvency and liquidity calculators as well. MicroTemp's financial calculators are an excellent way to benefit from hundreds of hours of expert spreadsheet planning without paying a lot of money. If the templates in the package don't quite meet your needs, MicroTemp also has a service that will custom design spreadsheets for you.

Felix

As you're leaving the software store with visions of Mac to PC spreadsheet nirvana, loaded down with *Excel for the PC*, *101 Macros for Excel* and *MicroTemp Financial Calculators*, there is one more product you might want to add to your pile of goods. Felix from Lightgate is a pointing device for Macintoshes and PCs that takes up less space on the desk than a traditional mouse and uses light rather than a ball and rollers to move the cursor.

The major advantage of Felix on the PC for spreadsheet users is that you can record macros *on the pointing device*. Around the edges and corners of the area in which the pointer moves

Excel for the PC takes a giant leap for spreadsheets by offering the ability to show multiple sheets on the screen at one time and link them together. To link spreadsheets, all a user has to do is point to the desired data in another window.

are twelve "hot spots." By using the ctrl, shift and alt keys Felix creates five levels of these "hot spots" that can be programmed to respond the way you want when you signal them. You can therefore program up to sixty different things on your Felix, from simple cut and paste to complex *Excel* macros. You just move the pointer to the edge of the device, hit shift, alt, control or some combination of the three and click. Macro magic.

Felix's macro abilities are not currently available on the Macintosh, however. Felix is also not compatible with *Windows 386*. Registered users will be able to upgrade as soon as Felix is compatible with *Windows 386*.

The task of connecting Mac and PCs is made simpler when there are Mac and PC versions of a software package available, especially when both those products are as impressive as *Excel*. While you could translate your *1-2-3* files into *Excel*, you save a lot of time by not having to do this. You also save time by not having to learn two very different spreadsheets. It may be true that spreadsheet warriors are the unsung heros of our age, and old veterans may be hardened enough to deal with the frustrations of different machines and different file formats. For the neophyte, however, with the introduction of *Excel* for the PC, things are made much easier. □

Resources:

Microsoft Corporation
16011 NE 36th Way
Box 97017
Redmond, WA 98073-9717

Macropac International
19855 Stevens Creek Blvd., Ste. 168
Cupertino, CA 95014
(800) 624-0077
In CA (800) 832-7766

MicroTemp
P.O. Box 1208
Santa Rosa, CA 95402
(800) 284-8367

Lightgate
6202 Christie Ave.
Emeryville, CA 94608
(415) 596-2350

TOPS
(New address and phone number)
950 Marina Village Parkway
Alameda, CA 94501
(415) 769-9669

$2 PER DISK — HOT SOFTWARE — IBM PC COMPATIBLE — $2 PER DISK

Send $1 for 200+ Disk Catalog On Disk! $1 Shipping Per 5 Disks + .07 Tax

E001 PC-Write 2.71 With Spell Check (2)
E003 PC-Outline 3.3 Memory-Resident
S001 ASEASY Vers 3.0 1-2-3 Clone
D007 Q Filer 3.0D-Great DOS Shell
DB003 Dbase3 Tools-Code Analyzer +
U010 Great Mail List Manager-Mass Appeal
D005 Still River Shell V, 2.24
B002 EZ Forms Generator
B007 Pro Masterkey Utils-Unerase, Unformat, More
E010 Word Perfect Macro Editor/145 Macros (2)
P006 Print Shop Clone
D001 Dos Tutor
LC024 Turbo C Tutor (2)
LC025 Turbo C Debugger
M001 ProComm 2.42 (2) Comm Program
E009 Homebase 2.0 Sidekick + (2)
U001 PC Mag 100+ Utils (2)
B011 Hard Disk Menu II-Tops Automenu
P004 City Desk 6.0 Dot matrix Desk Top Pub
LC018 Great "C" Tutor (2)
P005 LQ Print-New Version 2.26 Letter Quality with 17 Fonts on Dot Matrix

GENERIC COMPUTER SYSTEMS
22612 FOOTHILL BLVD., SUITE 200C, HAYWARD, CA 94541 415-581-1494
Walk-in Hours 9-7 Mon-Wed-Thur-Fri

APPLE	CASH	MC/VISA
MAC PLUS	$1249	$1279
MAC SE	$1949	$1999
MAC SE 20M	$2499	$2559
MAC II 1DR	$2599	$2679
IIGS,RGB,1DR	$1349	$1389

COMPUTERS CPU ONLY

LEADING EDGE 1DR	$619	$636
LEADING EDGE 2DR	$699	$715
LEADING EDGE 20M	$949	$979
HYUNDAI XT 2DR	$779	$799
HYUNDAI XT 20M	$949	$979
HYUNDAI AT 1DR	$1099	$1129
HYUNDAI AT 20M	$1449	$1485
EQUITY 1+ 2DR	$799	$821
EQUITY 2+ 20M	$1399	$1435

LASER PRINTERS

AST TURBO	$3299	$3379
HP LASER II	$1649	$1699
GENERAL COMP	$1499	$1549

EPSON PRINTERS

FX 86e	$319	$329
FX 286e	$429	$441
LQ500	$369	$380
LQ850	$549	$566
LQ1050	$749	$769
EX800	$429	$442
EX1000	$499	$514
PRINTER STANDS	$7.95	

CALL FOR STORE NEAREST YOU

PRICES EXP 4/30/88. PRICES WITH THIS AD ONLY. **415-465-2488**

10-NET Local Area Network System

- Bus topology/Star topology
- Speed : 1.0 million bits per second
- No dedicated server required
- Share most hardware devices
- Full sharing of application software
- File and record level locking
- Ethernet compliance
- Software release version 3.2
- Easy installation
- PC plug-in circuit board, tap box, cable
- Distance up to 2000 feet between repeaters
- Maximum bus distance: 10,000 feet
- Electronic mail, calendar, bulletin board
- Printer spooling, network diagnostics
- CHAT - simple user message system
- CB - multiple user dialog system

Call for Price

Cypress Distributing Company

560 Lincoln Avenue
San Jose, CA 95126
(408) 297-9800

22186 Rim Pointe
El Torro, CA 92630
(714) 770-7244

2670 Truxel Road
Sacramento, CA 95833
(916) 646-1955

Ampex Datasouth Indtech
C. Itoh Century Data Systems Packard Bell
Personal Computer Products Panasonic Seikosha Fujitsu
Moniterm Star Micronics Mitsubishi Rutishauser Canon

THE BEST !

TransComputer

THE WINNER !

State-of-the-Art Zero-Wait State Memory Access 286 & 386 Computers

TransAT 286-10: 2 MIPS machine **TransAT286-12:** 2.5 MIPS machine **TransAT 386-16:** 3 MIPS machine

TransAT 286-10

$990 complete !

16-bit 80286-10 microprocessor
100ns Zero-wait memory access
Real-time system throughput 13.2MHz
Norton SI = 11.5
Certified Phoenix BIOS
512KB expandable to 1MB memory
2 serial and 1 parallel port
Dual hard/floppy disk controller
1.2MB floppy disk drive
Enhanced workstation keyboard
FCC class B certified system enclosure
Technical reference manual

14" Amber monitor w/ MGP $1190
14" EGA monitor w/ Super-EGA $1550
13" Multi-sync w/ HiRES-EGA ... $1690

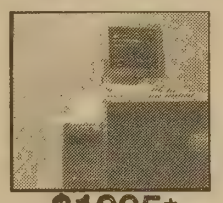
TransAT 286-12

$1290*

16-bit 80286-12 microprocessor
80ns Zero-wait memory access
Real-time system throughput 16.1MHz
Norton SI = 15.3
Certified Phoenix BIOS
1MB memory map for 640K/384K
2 serial and 1 parallel port
Dual hard/floppy disk controller
1.2MB floppy disk drive
Enhanced workstation keyboard
FCC class B certified system enclosure
Technical reference manual

w/ 42MB (38ms) hard disk ... $1750
w/ 65MB (38ms) hard disk ... $1890

TransAT 386-16



$1995*

16-bit 80386-16 microprocessor
100ns interleave memory access
Real-time system throughput 21.4MHz
Norton SI = 18.9
Certified Phoenix 386 BIOS
1MB physical memory
2 serial and 1 parallel I/O port
1:1 interleave hard disk drive controller
1.2MB floppy disk drive w/ controller
Enhanced workstation keyboard
Technical reference manual

Our 1:1 interleave disk controller will triple your hard disk access time !

w/ 40MB (38ms) hard disk ... $2485
w/ 80MB (28ms) hard disk ... $2895

* add $350 for TOWER case

Hard Disk Options:

20MB (65ms): $225
20MB (3-1/2", 28ms): $325
30MB (RLL, 65ms): $289
42MB (28ms): $525
65MB (RLL, 38ms): $550
(Other drive types available from Seagate, Fujitsu, Miniscribe, Micropolis, Toshiba, TEAC, and Microscience)

Peripheral Options:

1200 baud MODEM: $95
2400 baud MODEM: $195
2.5MB AT EMS board w/ software: $125
Opto-Mouse w/ PC paint: $99
HP LaserJet II printer: $1690
(Other printers from EPSON, ALPS C.Itoh, Data Products, Fujitsu, Panasonic, Star, and Seikosha)

Software Options:

dBASE III + ... $399
Lotus Symphony ... $499
Lotus 123 ... $299
MS-Word ... $279
Ventura Publisher ... $525
Pagemaker ... $450
WordPerfect ... $219

We will customize any system configuration per your application !

Specialized Office & Engineering Applications

TransAT 386-20mhz Networking CAD/CAE Desktop Publishing

TransAT 386-20

3.5 MIPS
#1 choice

$2750

with 2MB memory

32-bit 80386 microprocessor at 20MHz
Optimized system architecture for UNIX
Standard 2MB of memory (optional 8MB)
Real-time system throughput 28MHz
Norton SI = 23
Software switchable to 8, 10, and 20 Mhz
Optional 80287/80387 math-coprocessor
Certified Phoenix 386 BIOS
2 serial and 1 parallel I/O port
1:1 interleave hard disk drive controller
1.2MB floppy disk drive w/ controller
Enhanced workstation keyboard
Technical reference manual

Our 1:1 interleave disk controller will triple your hard disk access time !

LAN Workstation

$750

12" Amber monitor w/ tilt & swivel base
8088 Turbo-XT based workstation
One 360K floppy disk drive
640KB on-board memory
Local I/O ports
Workstation style keyboard

8-bit microprocessor (6502) based LAN controller with twisted-pair wire interface.

Built-in network BIOS drivers to support IBM PC-LAN and MS-NET (great for small business applications !)

LAN starter kit ... $590
includes two CSMA/CD LAN cards, cables, terminator box, complete network software, and training manual.

FREE Consulatation & DEMO !

Site Installation Available

CAD/CAE

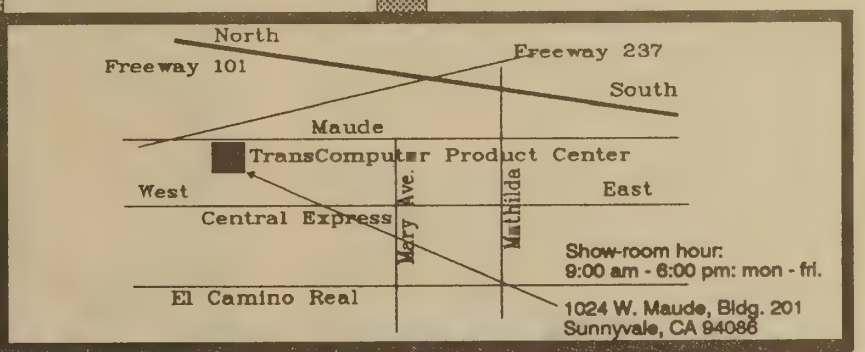
$2995

TransAT 286-12 CAD-Workstation
2 serial & 1 parallel port
Math coprocessor (80287-8)
65MB fast RLL hard disk drive
1.2MB floppy disk drive
15" 1280x800 resolution mono-display
or, 800x600 Multi-sync color-display
Optical Digitzed Mouse
Complete manual w/ intro-CAD training

Desktop Publishing

$4995

TransAT 286-12 PUB-Workstation
65MB fast RLL hard disk drive
1.2MB floppy disk drive
15" 1280x800 resolution mono-display
or, 800x600 Multi-sync color-display
Optical Digitized Mouse
HP LaserJET II printer w/ cable
Ventura desktop publishing software
Complete manual w/ intro-Desktop training



TICKER "No-slot socket clock"
(For Dealers Only)

- Simple installation in a ROM socket
- Eliminate the need for PC/XT/AT clock calendar card
- Dual embedded lithium batteries maintain time for 10 years+.

Sample qty: $19

TransComputer Direct Marketing Group: (408) 245-9606

Solving Technology with Excellence...

(800) 722-7793 (order desk)

Tech Support Hot Line: (408) 245-9603
1 year parts & labor warranty on TransComputer products.

Corporate purchasing: We provide FREE 30 days on-site maintenance service & net terms to qualified accounts.

OEMs & Dealers: Ask us about our customized manufacturing service !
Pricing, system configuration & availability is subject to change without notice.

Learning To (Hyper)Talk

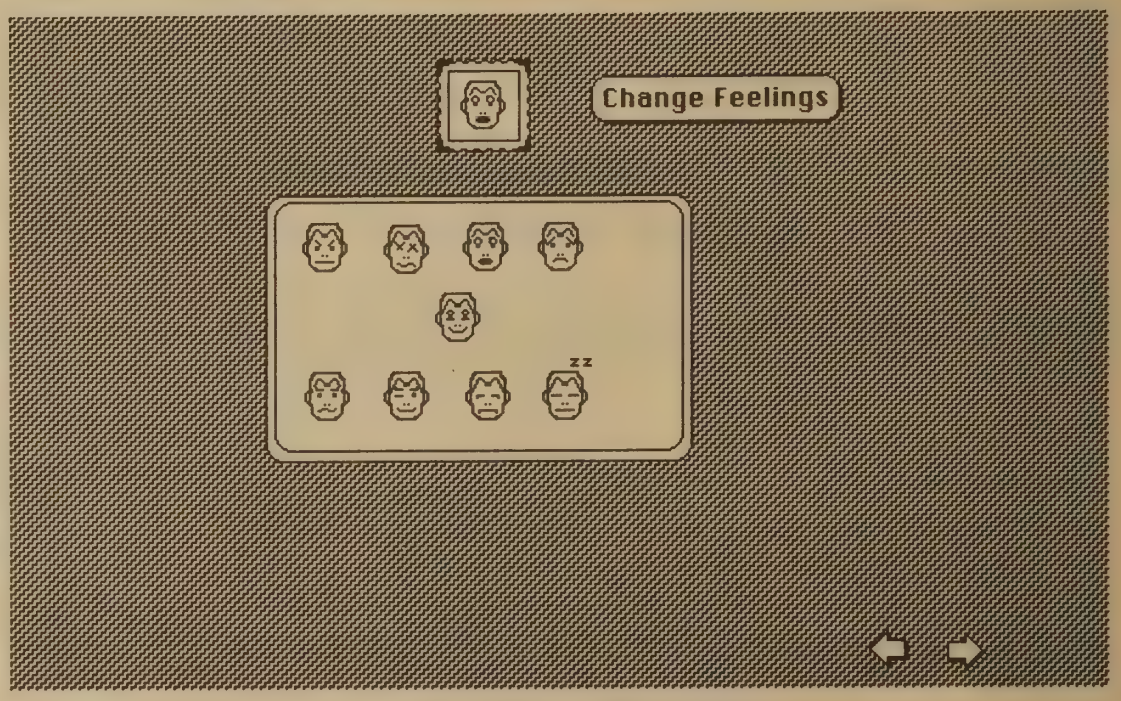
By Birrell Walsh

If you are just a tiny bit intimidated by HyperTalk (*HyperCard*'s programming language), then you owe it to yourself to meet Dan Shafer.

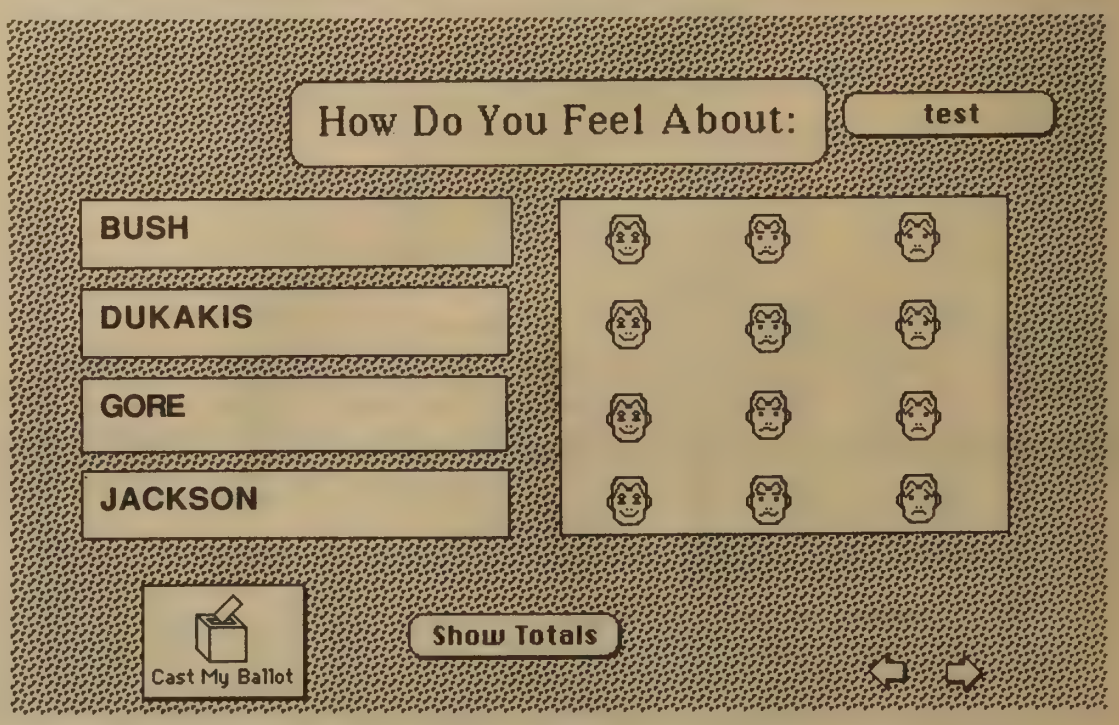
Dan is the author of *HyperTalk Programming* from Hayden Books, a hefty book about the language we all received with *HyperCard*. Because Dan is an approachable writer, even a gentle writer; you learn a great deal from his book with no effort. He explains what object-oriented programming languages are, and tells us why *HyperCard* is and is not object-oriented. That alone is worth the price of admission.

Shafer's products are designed for use. There is an excellent index in his book. He also offers (for $20 more) a disk full of useful programs for the programmer. A number of these are public domain or shareware programs, but the disk is worth getting if you plan to do any work with HyperTalk. It has two stacks that Shafer has written. "HyperQuiz" assists teachers in designing custom quizzes for their students. A second stack is a pre-commerical version of "ScriptExpert," which permits "Semi-Automatic Programming." Each button in the stack writes part of your script. The disk also includes Steve Maller's invaluable stack for resource-copying without ResEdit. Do Not Miss! (*HyperTalk Programming*, $24.95 at your bookstore, or call Hayden Books at 800/428-7267. You can order the resource disk ($20) from Dan Shafer, 277 Hillview Avenue, Redwood City CA 94062 415/361-8562.)

By switching among three forms, we got a candle whose flame flickered in an invisible wind. All the action took place within one card, the memory overhead was minimal, and the flickering was reasonably rapid.



A palette of facial expressions can be created for use in other stacks.



Face icons can be used as buttons in a simple polling application.

PC Components Headquarters

YES-386 20 MHz

- 20/8 MHz Motherboard
- 1 MB RAM Expandable to 2MB/More
- 200 Watt Power Supply
- 1.2 MB Floppy Drive (Japan Made)
- AT Type Keyboard
- Hi-Res Monographics/Printer Card
- 12″ Mono Amber Monitor (720x348)

$2288

16 MHz COMPLETE.....CALL

YES-286 10 MHz

- 10/6 MHz Motherboard
- 512K RAM Expandable to 1MB
- Hard/Floppy Controller
- 1.2 MB Floppy Drive (Japan Made)
- AT Type Keyboard
- Hi-Res Monographics/Printer Card
- 12″ Mono Amber Monitor (720x348)

COMPLETE SYSTEM **$848**

12 MHz COMPLETE $888

TURBO XT

8/4.77 MHz Turbo Motherboard
256K RAM Expandable To 640K
150 Watt Power Supply
360K Floppy Controller
360K Floppy Drive (Japan Made)
AT Type Keyboard
Hi-Res Monographics/Printer Card
12″ Mono Amber Monitor (720x348)

COMPLETE SYSTEM **$468**

10/4.77 MHz SYSTEM .$488

Seagate HARD DISK (cash)

20 MB w/Contrlr	$259
30 MB w/Contlr	288
30 MB 4038	448
40 MB 251	388
40 MB 4053	588
80 MB 4096	688
OTHER MODELS	CALL

**Prices Good Thru May 10, 1988

DISK DRIVES

TEAC 360KB/1.2 MB	$75/90
FUJITSU 360KB/1.2MB	65/85
3½″ 720KB/1.44 MB	90/129
APPLE COMP. Disk Drives	IIe $90/IIc $99
OEM 360K	60

MONITORS

14″ Monitor (720x348) Amber-Green-Black & White	$88
15″ Dualscan Monitor	128
14″ Ultrascan/Multisync Monitor (800x560)	448
NEC Multisync II	588
NEC Multisync Plus	948
Tape Back-Up	LOWEST

ADD ON BOARDS

Monographics Card w/Printer Port	$45
Color Graphic Card w/Printer Port	40/45
Paradise EGA 350	168
ATI EGA Wonder	199
Paradise EGA 480	188
Everex EGA 350	158
Everex EGA 480	178
Genoa EGA (800x600)	188
XT Floppy controller card	18
Multi I/O Card	48
Printer Card	20
RS-232	20
Clock Card	25
Game Card	20
AT Floppy Controller	48
AT I/O Card	55
XT 2nd Serial Kit	15
AT W.D. Floppy/Hard Controller	125
AT 2nd Serial Kit	25
2MB EMS RAM Card (XT/AT)	75/85
1200 Internal Modem	68
2400 Internal Modem	128

SERVICE

- PC/XT/AT/386
- Hardware Installation & Troubleshooting
- Software SetUp & Training
- Available For Emergencies With Appointment
- Reasonable rates

MISC.

Gender Changer (25-25; 9-9)	$5
Printer Cable 6′/9′/15′	6/9/15
6′ RS-232 (MF,F-F, M-M) Cable	9
Monitor Extension Cable	9
Keyboard Extension Cable	9
Hard/Floppy Disk Cable	6
XT Case	27
XT Case AT Lookalike	35
Baby AT Case	45
AT Slide-In Case	54
Diskette Box (cap 100 pcs)	8
Data Switch Box (AB:ABC:ABCD)	20/24/29
Dot Matrix Printer	165
Power Station (with surge)	29
Surge Protector (UL Approved)	10
150W/180W/200W Power Supply	45/60/75
5060 (AT-XT Switchable) Keyboard	45
Enhanced (AT-XT Switchable) Keyboard	55
Mouse Pad	9
Printer Stand (80/132 Columns)	14/19
System Stand	14
Joystick	20

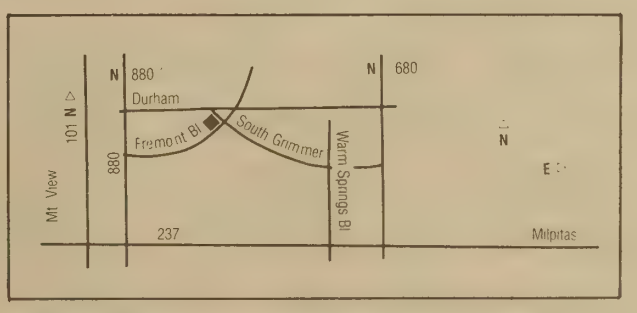
We Carry Too Many Items To List Fully
Call For Products Not Listed

Y.E.S. Multinational, Inc.

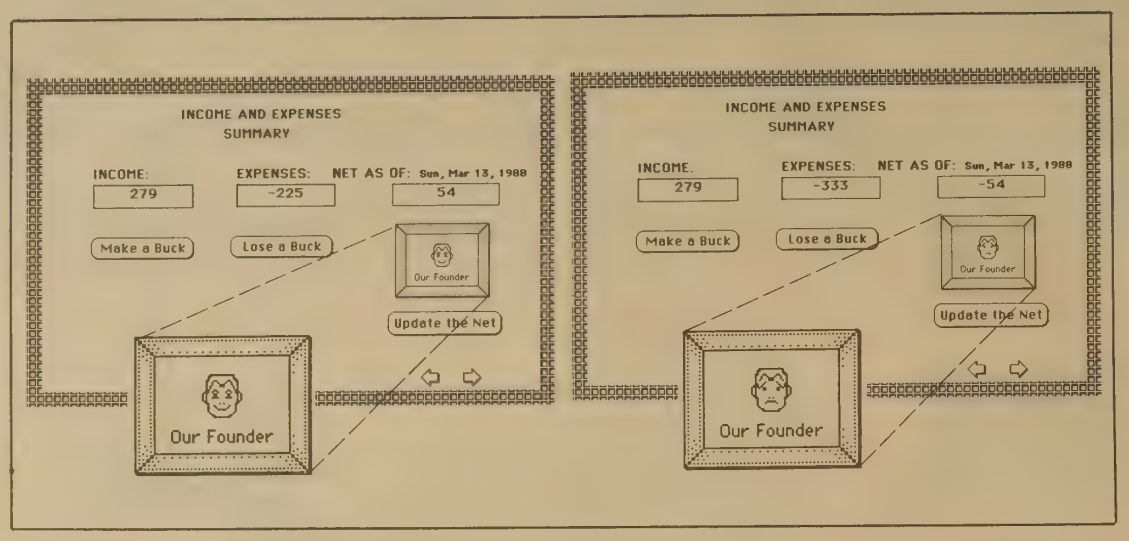
Dealer Inquiries Welcome

(415) 657-4888 •

44833 Fremont Blvd., Fremont, CA 94538 Mon-Fri 10:00-6:30 • Sat 10:00-5:00
FAX (415) 656-0118



Prices subject to change w/o notice Not responsible for typographic errors



Our Founder's face changes to reflect changes in the bottom line.

Small Moving Critters

Emboldened by Shafer's book and disk, we set out to do some animation in *HyperCard*. It is not difficult to make an animation in which one card succeeds another. These animations are like those risque flip-books which titillated youth in the early part of this century. One complete page is rapidly replaced by another, and the illusion of movement is a by-product.

But we wanted to have static backgrounds on which things moved without the time and memory overhead of moving from card to card. Animation all within one card — is it possible for *HyperCard*?

Buttons are very familiar if you ever owned a Commodore 64. Do not tell John Dvorak we mentioned Commodore computers — he thinks Commodore-owning writers are flatworms. But if you have ever had a C-64 you will recognize in a button what Commodore users call a "sprite." A sprite is an object that has a location, a shape, and a set of built-in routines that will move it, hide it, change its shape and alter its foreground/background-itude. A sprite is to an animator as a familiar is to a witch.

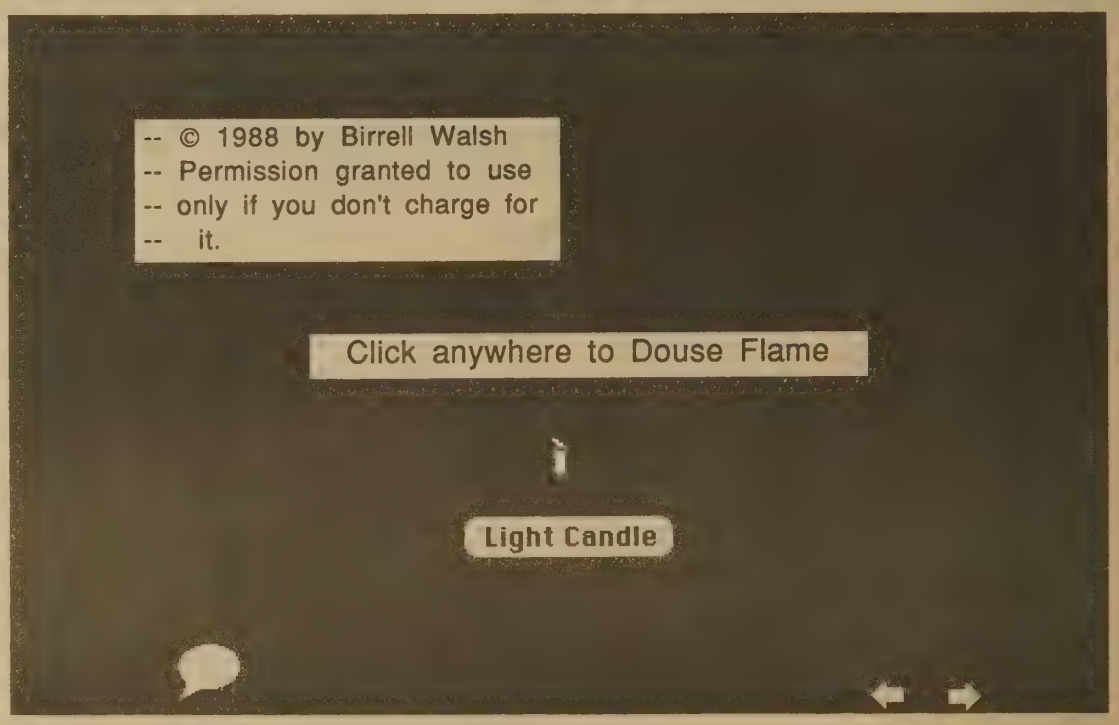
HyperCard buttons have all these characteristics. You can set their location with the "set location" command. You can change their shape with a "set icon" command. You can toss the button all over the card and make it appear and disappear with glee. Despite the default "On mouseUp..." script you find in its script window, you do not need to make a button responsive to being pushed. It can be just an object that you move around the screen to show its tricks – an animator's assistant.

We designed a set of candles to use on one of our cards. Each was different only in the shape of its flame. If we could get them to supplant each other quickly, we would have a candle whose flame flickered in the wind.

The following script did the trick:

```
on ignite
  repeat until the mouseclick
    get random of 3
    if it is one then
      set the icon of card button candle to 22249
    end if
    if it is two then
      set the icon of card button candle to 8306
    end if
    if it is three then
      set the icon of card button candle to 8306
      set the icon of card button candle to 13000
    end if
  end repeat
  set the icon of card button "Candle" to 7935
end ignite
```

The three icon shapes are 22249, 8306, and 13000. By switching among those forms, we got a candle whose flame flickered in an invisible wind. All the action took place within one card, the memory overhead was minimal, and the flickering was reasonably rapid. All that we need do is to use one command — 'Send ignite to card button "Candle"'.


-- © 1988 by Birrell Walsh
-- Permission granted to use
-- only if you don't charge for
-- it.
Click anywhere to Douse Flame
Light Candle

Using a simple script, the candle can be made to flicker in an imaginary draft.

To make the flickering more rapid, we can reduce the number of calculations:

```
on ignite
  put 22249 & return & 8306 & return & 13000
into iconTable
  repeat until the mouseclick
    set the icon of card button "Candle" to any
line of iconTable
  end repeat
end ignite
```

Now *HyperCard* will choose a line at random from a variable ("iconTable") which you have created in memory. The process is faster and cleaner. There are fewer calculations on each pass, and the flame flickers more rapidly. It's your choice as the programmer — you may prefer the delay. But generally in *HyperCard*, programs with fewer calculations run more quickly.

Communication Without Words

We designed a set of faces to use as icons for feelings, and set up a small group of cards that use them:

One card allows the user to vote to react to react to current candidates for president. It's reusable — the card fields can be filled with any name. Another application does not use the button for input at all. It reacts to the situation in a field. The "Financial Summary" card has a portrait of the company founder which smiles when the bottom line is positive, and puts on a sad face when the net is negative.

Making Icons

If you're convinced that buttons are for more than pushing, you need an icon building program. The images in this column were made with George Coyne's shareware stack "makeICON." I downloaded it from The WELL (415-332-6106, among other numbers). It is nicely constructed, and with it you can build an icon for any stack.

Downloading The Stack For This Column

If you are a member of The WELL (and if not, why not?) you can download this stack and many other resources. Visit the HyperCard conference, and run the Library program by typing "lib" and return. From there on, follow the instructions. This column's stack is called "MicroxMay88.sit" The ".sit" means that it is a "StuffIt" archive, compressed to save room and your online time.

You can leave messages, comments, praise and blame for stackware and *HyperCard* on the WELL (415/332-6106; user ID "birrell"), CompuServe (User ID 72466,3567) or by US Mail to:

Birrell Walsh
2440 Sixteenth Street #165
San Francisco CA 94103

Late Bulletin

There is going to be a *HyperCard* Conference & "StackMart" in San Francisco June 11 & 12 at the Civic Auditorium. It looks like an extraordinary opportunity for vendors and users to get to know each other and peddle their wares. Tickets will be $25 for one day, $40 for two in advance, five dollars more per day at the door. Contact: American Expositions, Inc., 110 Greene Street, Suite 703, New York, NY 10012, 212/226-4141.) □

Copyright © 1988 by Birrell Walsh. All rights reserved.

APPLE COMPATIBLE DISK DRIVES

½ Height Apple Comp. $89
Full Height Apple Comp 99
IIc ½ Height Floppy Drive. 95
Macintosh 800K 170
Apple IIgs Drive 165

APPLE TYPE CARDS

IIe 80 column w/64K $44
IIe Column w/128K. 59
Disk Controller 42
Parallel Interface . . .40
Graphics Parallel . . .59
16K RAM Card. . . . $34.95
Super Serial Card. . .69
CPM Card 29

DISKETTES

DS DD 5¼″ Box of 10 . . $4.50
High Density Box of 10 . $13
DS DD 3½″ 14.50
10 Pieces
Apple & IBM Joysticks. $22
6 Outlet Surge Protector. 9
Apple II, II + Joysticks 15

MOUSE SPECIALS

M-2 Mouse w/Microsoft & PC Mouse Software $64
Genius Mouse w/Driver Software & Dr. Halo III & Mouse Pad 69
Mouse Pads. 6

CHIPS

Due to Price War Please Call For Best Prices
16K, 64K, 256K, 1 Meg 2716, 2732, 64, 256, 8087, 8087-2, 80287-6, 80287-8, 80287-10

STOP
AND COMPARE OUR PRICES

IBM COMPATIBLE DRIVES

TEAC 55BV ½ Height 360K $80
Fujitsu ½ Height 360K 75
Toshiba 1.2 Meg AT 99
3½″ 720K with 5¼″ mounting kit. 99
Toshiba 3½″ 1.44MB 119
30 Meg w/Controller $319
20 Meg w/Controller 259
10 Meg w/Controller 125

IBM TYPE CARD

Floppy Controller. $34
XT 1.2MB Floppy Controller 52
Clock Card 34
Serial Card 34
Multi I/O 52
Hard Drive Controller 65
Hard Drive RLL Controller 75
Monochrome w/Print 49
DOS 3.2/3.3 w/GW BASIC . . .69/92
Samsung Amber Monitor 80
Clock Card w/Serial Port. 44
AT/XT EMS. 95
AT I/O. 45

MODEMS & CABLES

IBM 1200 Baud Internal. $69
1200 Baud HC AVATEX 109
2400 Baud External 149
1200 HC EXTERNAL 79
6′ Parallel Cable. 8
Serial M-M or M-Female 8
IIc Modem Cable 10
Macintosh Modem Cable 10
IIe to IIC Drive Adapter 10

We Ship Daily • 90 Day Replacement Warranty
DEALER Inquiries Welcome • Minimum $2 Shipping Charge
No Charge Cards Accepted

GUENTHER

COMPUTER PRODUCTS INC.

312 Locust St.
Santa Cruz, CA 95060
New Larger Location To Serve You Better

(408) 458-9404

Please Include $2 Minimum Shipping Charge

KS/WB 1.3: The Amiga's New Operating System

By Matthew Leeds

A new version of the Amiga's operating system is in the works, which will include changes to the C directory AmigaDOS commands, improved printing via a new printer.device and printer drivers, a faster file system for hard disks, a recoverable RAM drive that supports rebooting directly from RAM, a new Preferences, double precision IEEE math libraries that support a 68881 co-processor directly, and four Adobe PostScript-compatible screen fonts.

I obtained an advance copy of the KS/WB 1.3 release, a Gamma version, and permission from Commodore Business Machines to write this article. They did require that I preface by stating that the Gamma version may not necessarily contain all changes to the final release, and some of the changes on the Gamma version may not be in the final release, or may be changed in their form or function by the final release.

What's New?

With the disclaimer out of the way, let's start with changes to Kickstart. The only major change is that KS 1.3 now allows for autobooting from a hard disk. For Amiga 1000 owners this means that you will only need to use the Kickstart disk to start your machine if you have an autobooting hard disk (see below). Amiga 500 and 2000 owners will no longer need any floppy disk to start their systems if they have an autobooting hard disk (see below).

There are two gotchas in this. The first is that for a hard disk to offer autobooting, the hard disk controller card must have autobooting ROMs onboard. Since all current hard disk controllers were built prior to CBM's announcement of hard disk autobooting, anyone who currently owns a hard disk is out of luck. There does not appear to be any way to retrofit this capability. The first hard disk controllers that will come to market with this capability will be from CBM, the 2090A, and from Microbotics.

The second gotcha is that since autobooting requires Kickstart 1.3 in ROM on Amiga 500s and 2000s, you will need new Kickstart ROMs to obtain this capability. My sources inside Commodore indicate that by the time you read this, all new Amiga 500s and 2000s will ship with Kickstart 1.3 ROMs. However, no release date has been given for current owners to obtain the new ROMs, and given the shortage of repair parts many service sites have experienced, it seems that there may be a long wait to upgrade your machine.

For a hard disk to offer autobooting, the hard disk controller card must have autobooting ROMs onboard. Since all current hard disk controllers were built prior to CBM's announcement of hard disk autobooting, anyone who currently owns a hard disk is out of luck.

Matthew Leeds has been involved in the high tech field since he blew up his bedroom playing with a children's chemistry kit. He has been using Commodore computers since 1982 and has a strong interest in photography, video, graphics and related fields. He currently works for Infinity Software.

Changes In AmigaDOS

AmigaDOS has been dramatically reworked. Although the ARP project commands have not been adopted, as many had hoped, there are significant changes and enhancements.

In more or less alphabetical order:

Addbuffers now speeds up hard disk access dramatically when using the Fast File system.

Assign now correctly handles device names with more than three characters. It will also let you search the assign list for a specific name.

AUX-handler is a new AmigaDOS handler. It provides unbuffered communication over the serial port.

Avail, a new command, returns a summary of the system RAM, separated into FAST and CHIP categories.

CLI has been changed. It now checks for the existence of a script file called CLI-Startup in the S directory and executes the commands it contains (See **Shell**). It also accepts tooltype flags to control the size and placement of the window it opens and the stack setting.

Clock now accepts command line arguments to control its type, and an option to open it as a digital clock embedded in the Workbench title bar.

Clockptr, a new command, turns the Workbench pointer into a digital clock.

CMD, a new command, lets you redirect output going to the serial or parallel port to a file.

Copy has been enhanced to allow you to preserve the date/time stamp, the protection bits, and any attached filenote. You can also specify the size of the buffer used during the copy process. Copy will now create a new directory if the specified destination directory does not exist. You can also use a set of double quotes to specify the current directory as the destination.

Date now allows a leading 0 or single digit in the date specification.

Delete has been changed to continue if you have specified multiple deletes and one fails.

Dir has been enhanced by the addition of mnemonic equivalents for the A, I, and D flags. During the I option you can now execute AmigaDOS commands.

Diskdoctor has been improved. It now checks to see if sufficient free memory exists for it to execute, and other minor improvements have been added. It's still better than nothing, but not as good as backup copies.

Echo now has a flag that eliminates the output of a new line after printing a string.

EndSkip solves the problem of a missing NAME while using the SKIP command in script files.

ENV will be a new handler sometime in the future. It will be use to store environmental variables. Since it has not yet been implemented, the 1.3 startup-sequence creates an ENV directory in RAM (see **GetENV** and **SetENV** below).

Execute will now use the T: logical device if it exists (also see **Protect**).

FF (FastFonts) is a program written by Charlie Heath that speeds up text on the Amiga.

FixFonts corrects the .font files in the FONTS directory when fonts have been added or deleted from font sub-directories.

Format has two new options. Quick will reformat a previously formatted disk by rewriting the root block and track, the boot block, and bitmap blocks. This is much faster than formatting the entire disk. FFS will format a disk under the FastFileSystem, used for hard disks.

GetENV will get the value of an environment variable.

Info has been changed to handle longer volume names and a flag to get info on a single device or volume has been added. Using Info from Workbench now supports the Archive, Read, Write, and Delete protection bits, accurately reports the number of bytes per block (see FastFileSystem), and works on icons that do not have files attached to them.

InitPrinter forces the printer.device to read from Preferences the setting you have selected.

Install has protection checks against viruses built in now. You can check a disk for a valid

NOW OPEN IN CUPERTINO

(Corner of DeAnza & Rodriques)

COMMODORE AMIGA 2000

COMMODORE AMIGA™ Authorized Dealer

Motorola 68000 CPU with built-in disk drive, keyboard, mouse, system software and Basic

Standard 1 MB Ram expandable to 9 MB

Multi-tasking Operating System

4096 available colors with max resolution 640x400 (more with overscan).

Only Amiga Makes It Possible.

NEW HARDWARE

- ASDG 8 MB Ram Board
- Great Valley Ram/ SCSI Controller
- C LTD SCSI Controller
- Pacific Peripherals Overdrive
- We Stock All Amiga Label Hardware

COMMODORE AMIGA™ **PERSONAL COMPUTER**

NEW SOFTWARE IN STOCK!

- Deluxe Productions
- Photon Paint
- Road Wars
- Thexder
- Jet
- Ferrari Formula 1
- Mavis Beacon Teaches Typing
- Crazy Cars
- Studio Magic
- Benchmark Modula 2

Amiga, Amiga 1000, and Amiga 2000 are trademarks of Commodore Business Machines, Inc.

*See us at the Commodore Show May 15th & 16th

COMPUTER ATTIC

SAN FRANCISCO
217 Sansome Street
Corp: (415) 398-4543
(415) 398-4541

PALO ALTO
382 University Avenue
(415) 322-0639

CUPERTINO
10251 S. DeAnza
(408) 253-5300

Amiga Available In Palo Alto & Cupertino Only

boot block, and Install now clears memory used for creating a boot block. You can also make a disk a valid DOS disk without making it bootable.

List now displays the new protection bits (see **Protect**). It also handles wildcards, and can display file sizes in blocks as well as bytes.

Lock sets the write protect status of a hard disk drive or partition mounted using the FastFileSystem. It contains a password option.

More is a utility for displaying ASCII files from either the CLI or Workbench.

Mount has not been changed, but the keywords used in the Mountlist have been enhanced. Most of the changes are in support of the FastFileSystem.

NewCLI now looks for the CLI-startup file in the S directory.

NEWCON-handler is a new handler that acts as a replacement for the CON: handler. It adds command line editing and a history buffer to CLI or SHELL windows that call it (see **Shell**).

NewShell starts up a new Shell (see **Shell-Seg**).

PIPE-handler is a new handler that creates an interprocess communication channel. It was written by Matt Dillon. It allows communication between programs by acting as an I/O option for loads and saves of files. This saves the intermediate step of saving to disk or RAM.

Prompt can now print the current directory as well as the task number.

Protect now addresses the new protection bits: (H)idden, (S)cript, (P)ure, and (A)rchive. When the Script bit is set on a text file it can be Executed by calling it directly. The Pure bit allows commands to be made Resident (see below). The Archive bit is used during backup and restore operations, and the Hidden bit is used to hide files.

AmigaDOS has been dramatically reworked. Although the ARP project commands have not been adopted, as many had hoped, there are significant changes and enhancements.

RAMDRIVE.device is a recoverable RAM disk similar to VD0: from ASDG. Under Kickstart 1.3 it can be used to reboot the system without using a Workbench disk.

RAM-handler has been changed to eliminate several bugs. You can now call it under the name "RAM Disk"; it no longer allows two files with the same name, you can now rename it from Workbench, and it correctly handles date/time stamps.

Resident is a new command used to load commands without executing them, then execute them directly. Only commands with their Pure bit can be made Resident, and not all commands can be made Resident. Commands must be reentrant and re-executable. Commands can be given new names when they are Residented.

Run can now be used to start background processes that allow the closing of the CLI the process was started from.

SetAlert fixes the Alert bug, the DeleteLayers bug, and the math exception vectors.

SetDate can now use the current date/time as a default to reset the date/time stamp on a file.

SetENV is used to set or remove the value of an environment variable.

Shell is called from the Workbench to invoke a CLI window that uses the NEWCON-handler.

Shell-Seg is not exactly a handler although it sits in the L directory. It is made Resident during startup, and then called whenever a new CLI is started. It allows the use of Resident commands, alias names for commands (e.g. XCOPY for the COPY command with the date/time, protection, and filenote preserved, without having to add those flags), uses the new capabilities of the Prompt command, and supports the Script bit on text files.

SPEAK-handler is a new handler that uses the narrator.device and the translator.library. It can be used by other programs or processes to provide spoken output.

Status now supports negative priorities and allows a flag to search for a specific command.

Type now checks to see if a destination file exists and lets you know if it does.

Version is a new command that supplies the version and revision number of a library, device, or Workbench disk.

Xicon is a version of the program written by Pete Goodeve. It lets you execute script files from the Workbench.

Next month I'll continue with a look at the FastFileSystem, the new printing capabilities, new Preferences, the new math libraries, the inclusion of Adobe fonts, and information on support for the new A2024 high resolution monitor. □

HyperExpo & StackMart

San Francisco Civic Auditorium • June 11-12

It's A Breakthrough Conference: Two Full Days devoted to HyperCard™ and Hypermedia.

• Keynote: Navigating the Information Future • HyperCard - The Front End of a Communications System • HyperCard and the Digital Video Interface • Higher Education Solutions - CourseWare Development • Advanced HyperTalk™ Programming • Corporate Solutions - Interactive Presentations, Computer Based Learning • HyperCard User Group Forum • Interactive Games on HyperCard • HyperCard and the Creative Arts • The Business of Hypermedia • The Operating System of the Future

It's A StackMart: For Individual StackWare Developers

StackMart Table-Tops Cost $95. Bring Your Mac, Bring Your Stacks, Plug in and the StackMart Will be Underway. There's Room for over 150 Tables and No Hidden Costs. Price includes electricity, table, backdrop and sign. StackMart tables are for individual developers only! Call Now to Make Your Reservation.

It's An Expo For Commercial Vendors Leading the HyperWay

Register By June 1 and Save $$$ One Day Ticket $25 ($30 - Late Registration) • Two Day Ticket $40 ($50 Late Registration) Make Checks Payable to and Return to: American Expositions, Inc. • 110 Greene St., Suite 703 • New York, NY • 10012 • Tel: 212-226-4141

HyperCard & HyperTalk are Registered Trademarks of Apple Computer, Inc. HyperExpo and StackMart are Registered Trademarks of American Expositions, Inc.

Your Name_____
Company_____
Address_____
City, State, Zip_____
Telephone_____

COMPUTER SPECTRUM
of Burlingame

PRESENTS

WORLD CLASS EXPOSITION 1988

COMMODORE AMIGA™

ATARI®

FREE ADMISSION

SATURDAY APRIL 30 & SUNDAY MAY 1, 1988 at:

THE ISLAND (Fashion Island Mall) San Mateo, CA

- **Exclusive debut** of Atari & Amiga software - direct from Europe!!
- Win Computers • Specials • **FREE** Drawings
- Savings
- Visit Exhibitors - Including: Atari, Commodore/ Amiga, Word Perfect, Electronic Arts, EPYX, Right Answers Group, Beckmeyer Development, Oxxi, Inc., Timeworks, Amiga & Atari User Groups, Doss Industries, John Gard Engineering, Accolade, Aegis, Midi Music Concert by Rick Escobar and many more! (Listings as of April 1, 1988)

THE ISLAND
San Mateo, California

Fill Out & Bring With You
For FREE Drawing

NAME _____

ADDRESS _____

CITY, ZIP _____

PHONE _____

Need not be present to win.
Limit 1 per person.

For more information on the Atari & Amiga World Class Exposition 1988 call Computer Spectrum.

COMPUTER SPECTRUM
1243 Howard Ave., Burlingame, CA

(415) 347-4576

Atari Sues Micron

By David Hawkins

What does the lawsuit mean? How does it affect you? And how does it affect US computer manufacturers?

Background

A few years ago, US chip manufacturers, including Micron, complained that Japanese chip makers were "dumping" chips in the US. The US companies said that the Japanese were selling the chips at an artificially low price to drive the US companies out of the market. In response to this lobbying, the Japanese companies agreed to restrict sales of chips to the US. They entered into a "voluntary" agreement with the Department of Commerce starting August 1, 1986 and running for five years. (If they hadn't signed the "voluntary" agreement, the US Congress probably would have restricted chip sales to the US.)

The sales restriction has hurt the companies that need the chips. You can buy any quantity you want — if you are assembling the computer in Japan. Otherwise you really have to scramble to get chips. (It's also created a smuggler's market as people sneak chips through US Customs.)

Right now the loss of the chips that would have come from the Micron contract is affecting production of the Mega STs and the Atari laser printers.

This has left US manufacturers having to rely on US chip makers. Large companies, like IBM, have their own chip sources. Smaller companies, like Apple and Atari, try to get as many chips as they can from Japan and then buy the rest in the US. Apple and other companies keep a team in Japan to make sure that they get their maximum allotment at all times.

Micron And Atari

Atari had been buying chips from Micron, an Idaho based company, and were paying $1.95 per chip for 256K DRAMs. Recently Joseph Parkinson, the president of Micron, visited Atari and a deal was made for Atari to buy more chips at $3.75 each, almost double the price they had been paying. (As a point of reference, the chips cost $1.35 to manufacture.)

Parkinson returned to Idaho. Then Micron called Atari to say that no chips were for sale. Later Micron offered to sell the chips for $6.00 each. At this point Atari filed the lawsuit.

The Lawsuit

First, Atari is suing Micron for breach of contract. Atari says that Micron is failing to deliver chips at the agreed price of $3.75 each. Atari is asking to be compensated for the cost of buying three million chips at a higher price than $3.75 per chip.

Second, Atari is charging Micron with "bad faith denial of existence of contract." The damages for this would be determined later and would be both compensatory and punitive.

Third, Atari says that Micron is in violation of the Sherman Anti-Trust Act and is operating as a monopoly. The damages for this violation would be determined later.

Fourth, Atari claims that Micron is engaging in unlawful price discrimination, which would be a violation of the Robinson-Patman Act. Damages for this would be established at the trial.

What Does This Mean?

Atari and other computer manufacturers have to have a good supply of DRAM chips in order to produce computers. More and more computers are being sold with greater memory, which often relies on the 256K DRAM. Right now the loss of the chips that would have come from the Micron contract is affecting production of the Mega STs and the Atari laser printers. Obviously this benefits companies like IBM which make their own chips.

Also, higher production costs due to inflated chip prices means that the final product will sell for more.

Long Term?

I would hope that the Department of Commerce would see that the agreement with Japan is benefiting US chip makers while it hurts US chip users. It's not hurting the Japanese chip manufacturers, since they can still sell every chip they make.

Meanwhile, Intel has announced an agreement with Micron to distribute chips for Micron. Micron has said that it will need to start a third production facility to meet demand.

Other News: WordPerfect For The ST

There has a been a rumor that the WordPerfect Corporation would pull *WordPerfect* from the Atari market because of the circulation of pirated copies. I've read a couple of releases from WordPerfect saying this is not true. They are concerned about piracy in the market, but the problem is not causing them to withdraw the product at this time.

If you need a full featured word processor that you can use on several different machines, get WordPerfect. The company is continuing to improve what is already a good product.

If you need a full featured word processor that you can use on several different machines, get *WordPerfect*. The company is continuing to improve what is already a good product. If you purchased the very first version (which did have a few bugs), they will provide a free upgrade. By the way, the manual is very good.

Piracy isn't worth it. All you need to do is grab one program with a virus to lose a lot. There is at least one ST virus in circulation. Play it safe and buy clean copies of good software.

Dungeon Master — Bug

OK, *Dungeon Master* is a fantastic program. But version 1.0 has a couple of bugs that can pop up at the very end of the game, and there are a couple of things that will cause the game to freeze. I completed the game, but I knew what to watch for. Telling the conclusion would spoil the climax, so instead, send off to FTL and ask for version 1.2. They'll provide a free upgrade if you send them a self-addressed, stamped envelope that's large enough to hold a 3-1/2" disk. Again, *Dungeon Master* is a fantastic game. A hint book will be released later this year. There are a couple of hints files and maps available on local bulletin boards. □

David Hawkins is the host of the Atari conference on The WELL (415/332-6106); send email to dhawk. He can also be reached as David Hawkins on the Guild (415/771-7062). He has one of the first Atari ST 1040s sold in San Francisco, both monitors, an Okimate 20 color printer, and disks all over the room.

GUITAR SHOWCASE

Music Software Specialists

SOFTWARE SPECIALS

IBM

MIDI Starter System: 8 Track Sequencer, DX-100/CZ-101 Librarian **$169**

MT Master: Editor/Librarian for Roland MT-32 **$79**

MF Master: Editor/Librarian for IBM Music Feature Card **$79**

CMS 401: Roland Compatable MIDI Card **$150** *when purchased w/software*

MACINTOSH

Master Tracks Pro:
Intuitive and Powerful **$295**

DigiDesign "Sound Designer" for Mirage $369

Sonus Mac Face:
Mac Music Interface **$169**

ATARI ST

EZ Score St:
Transcription for your Atari **$79**

Sonus Super Score:
Sequencing and Transcription **$199**

Hybrid Adapt Rack Sampler:
16 bit Sampler **$1299**

Steinberg S-900 Editor $225

STARTER PACKAGE

Buy a Tascam Porta-05 for $479
or a Tascam Porta-One for $599
and we'll include at no extra charge:
Audio Technica Pro-1 Microphone, Microphone Stand and a set of AKG K-2 Headphones
That's over $100 worth of accessories for FREE!

MIDI MONDAYS

April 18 MIDI on the IBM
Programming the Roland MT-32
Special Presentation by Evan Aurand

April 25 SAMPLING on the ENSONIQ EPS
It's really here!

May 2 MIDI on the MAC
Sound Designer by DigiDesign

May 9 MIDI on the GUITAR
Roland GM-70 System

GET THE VALUE YOU DESERVE!

Get Factory Trained Sales Personel!
Get In-Store Service with Free Loaners
Get Extended Labor Guarantees!
Get Weekly MIDI Clinics "MIDI Mondays!"

GET "REAL VALUE!"

CALIFORNIA'S LARGEST MUSIC COMPLEX OFFERS YOU:

- Complete Selection of Acoustic & Electric Guitars, Amps, Drums, Keyboards, MIDI Equipment, Software, P.A. Systems, Recording Equipment, Violins, Cellos & Accessories.
- Buy, Sell, Trade and Rent - Daily and Rent-to-Own Programs Available.
- Financing Available

KEYBOARDS, PORTASTUDIOS & P.A. SYSTEMS FOR RENT!

CAPITOLA
1360 41st. Avenue
408-476-4882

GUITAR SHOWCASE

SAN JOSE
3090 S. Bascom Ave.
408-377-5864

Horror Stories

Don't Forget, Back It Up!

By Robert D. Athey Jr.

We had a little problem turn up at the user group last month. A woman who works at a publishing house raised a question that arose from a crisis with the Kaypro 10 on which the office has kept its records for the last four or five years. She herself was not an experienced user, nor were any of the successive temporary keyboardists entrusted with data entry.

The machine in question has a hard disk, on which records have been stored continuously since the company started using the machine. When the disk drive started acting up, they took it to a local computer store; over the next several months, the machine racked up several hefty repair bills with no noticeable improvement in performance. By now the publishing house was getting desperate, because it really needed the data on the disk.

Several suggestions came up to address the immediate problem of recovering the data. There are public domain software programs that can help, but they require some effort and expertise from the user. Outside consultants are a possibility, at rates from $60 to $90 an hour. (If you've got a Macintosh hard disk, the Berkeley Macintosh group has a *free* data recovery service for members.

My suggestion was to call Jon Gordon to see if he could, first, save the data, and, second, save the computer.

Jon Gordon doesn't do so much Kaypro and Morrow work as he did when he was at Berkeley Computer; these days he's better known for his MIDI demonstrations at LaVal's in Berkeley and his Amstrad/Atari work at MicroWorld. He will, however, take on those especially challenging non-routine and different problems with the CP/M computers, Kaypro especially. It doesn't matter what it is, so long as it's unusual.

Suffice it to say there were complications in the problem of the Kaypro 10. Apparently, there are several versions of the machine out there, with many minor variations and upgrades. So the question immediately arose which version of Kaypro 10 the ill-fated publishing house's machine was, and what the chances were that the technician trying to fix the machine had the correct datasheets on repairs for it? No one knows to date, and it's critical, as some ROMs are not like others of later series, and the same with disk controllers.

Jon did succeed in recovering the data and transferring it to another, healthier Kaypro 10 hard disk. The publishing house and Jon estimate that's worth more than $15,000 to the user!

Bob Athey has over 20 years of experience working on computers and runs his own company on chemical consulting and contact research. He can be reached through MicroTimes *or at (415) 526-3541.* *Copyright © 1988 by Robert D. Athey Jr. All rights reserved.*

So you think you've been operating without backing up your disks for two-plus years and have had no problems, so you won't have any problems in the future. I like your kind of optimism.

What To Expect From Your Repair Shop

In a recent talk to our user group, Jon made some significant points about the mutual obligations of customers and repair shops.

First, the customer must get an estimate of the cost of diagnosis, and of the cost of the repair. This estimate should be in writing, and a copy carried out of the shop for the customer's records when the device is left behind.

Secondly, upon finding that the needed repair is more extensive (read expensive) than the estimate, the repair shop is required by law to notify (usually by phone) the customer, *and get approval.* The approval must be noted in writing on the customer repair order — time, date and change authorized.

Thirdly, the customer has the right to receive all used parts replaced in the course of a repair, packaged and ready to return to the customer on return of the repaired device. If there is disagreement as to the appropriateness of these replacements, it is necessary to have these items to test them for failure.

Fourth, the customer should have assurance not only that a part exchange or adjustment has been made, but also that the performance of the repaired unit has been tested. That noisy disk drive better be noiseless after a few hours of running before I get it back.

But More Important: BACK IT UP

The publishing house's crisis brought up another all-too-frequent problem. In the entire history of the machine's use, the disk's contents had never been backed up. Not only that, the procedure itself had never been explained to any of the machine's operators.

There are several ways to keep your archive (a sort of library of data saved just in case you lose the original set). The simplest is to make floppy disk copies of the files on the hard disk(s) — just as the files are today. In CP/M systems, you can use the "COPY.COM" program, or you can use the "PIP.COM" program, and the data will be copied just as it looks on your screen.

If you use "NEWSWEEP" (NSWEEP or CWEEP214 in MS-DOS), you can tag the files you want on the floppy for backup, and then mass move them with one keystroke. Since I keep things on my RAMdisk on the ON!, and the RAMdisk is divided into user areas just as hard disks are, each user area is assigned as a different class of files. My correspondence is in A6, the book in A4, the spreadsheets in A3, and so on. When I back up the book, I pull out the book floppy disk and move files to it from the RAMdisk using the NEWSWEEP-clone disk manager provided with the ON!

You're not limited to those tools. You can make the archive take up much less space on the floppies than they do on the hard disk, in several ways. One is to make libraries of related files, using the NULU.COM program, or other such programs. This saves a little program file space, and lots of directory space (yes, there's a limit on directory size in CP/M). Another option is to "squeeze" the files you want to save, with a program like "NEWSWEEP." That program has an option that squeezes and mass transfers files simultaneously from the hard disk to your floppy. (Squeezing the files means they take up about 30% less space on your disk — so you can use seven floppies to copy a hard disk instead of 10.) An even better option, if you want to save floppies, is the "KRUNCH" program, as it allows you to save about 50% of the file space (I've heard 70% claimed, but see 50% in my files).

Where do you get these programs? "COPY.COM" and "PIP.COM" came with your operating system disk (though I've seen commercial versions of copying programs that are enhanced--such as the one from Plu*Perfect Software in Idyllwild, CA). The KRUNCH, NEWSWEEP, and NULU are public domain programs I've described in previous columns , but they are available from your local user group disk librarian.

If you aren't a user group member, it's time you were, just so you'd have access to the library. Look up the local user group in the back pages of *MicroTimes*. Certainly FOG, BAKUP and BAMDUA have these programs, and their remote bulletin boards will have them for downloading to your modem, too.

So you think you've been operating without backing up your disks for two-plus years and have had no problems, so you won't have any problems in the future. I like your kind of optimism. You'll learn that it's sometimes misplaced, though. Back 'em up!

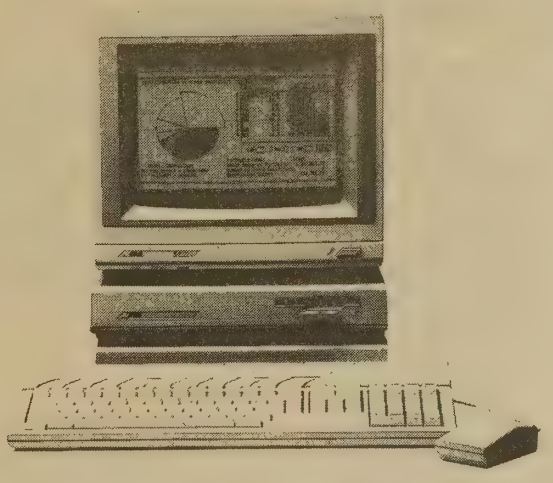
MICROWORLD

1514 University Avenue, Berkeley, Ca. 94703

ASKS: Why WASTE YOUR MONEY?

The ATARI ST has more features and costs less than any comparable system on the market. Who else can offer a Post Script DESKTOP PUBLISHING system complete with software and PS laser printer; Or, a complete Mega 2 &Atari Laser Printer &20 meg hard disk, the perfect typesetter's system for for only $4000? ($700more for Mega 4) That's right, no-one else even comes close.

AT ALMOST HALF THE PRICE, IT LOOKS EVEN BETTER.



You're looking at the newest business computer. The MEGA™ computer from Atari. And at almost half the price of a Macintosh™ SE, it looks even better.

With 2 or 4 megabytes of memory and 68000-based technology, the MEGA computer has the power to perform any business task.

The MEGA has a graphics accelerator chip for faster, smoother scrolling and a high-speed DMA port for faster file access. It also has color. 512 colors to be exact.

And it's supported by a full range of business software. Software that can balance the books, manage the database, and even animate the next sales presentation. What's more, with the Atari SLM804™ laser printer, you can even publish a newspaper.

All for about half the price of the Mac SE.

Simply put, the Atari MEGA is a faster, more feature-rich computer. At about half the price. Now, isn't that better?

More than 1500 applications!

MIDI-*Passport, Dr T, Sonus. Hybrid Arts,MarkUnicorn*

CAD-*Drafix, Athena, GFA Intelliview 3D, et al*

DESKTOP PUBLISHING *Publishing Partner,Lexit, Fleetstreet, Publish It, GFA, EasyDraw,Calamus*

DATA PROCESSING *DBMan, Zoomracks II Superbase, Data Manager*

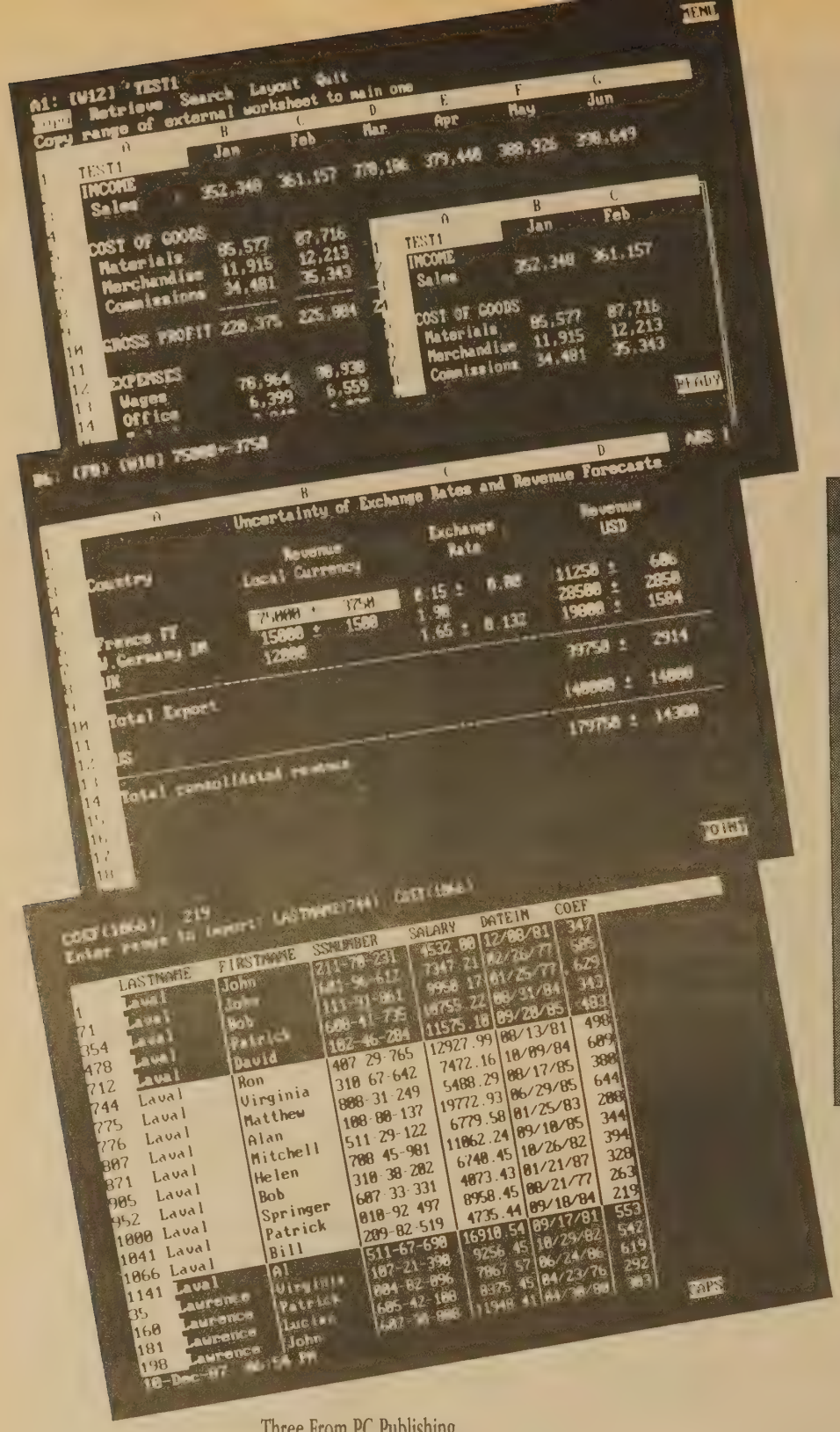
ACCOUNTING&SPREAD *BEST, Equal+, SBT, DAC, VIP, EZCalc, etc*

GRAPHICS-*DEGAS, Art Studio, Cyber Paint, GFA Artist, 4039 colors!*

WORDPROCESSING- *Wordperfect, Microsoft, GST, WordUp, Word Writer and much more!*

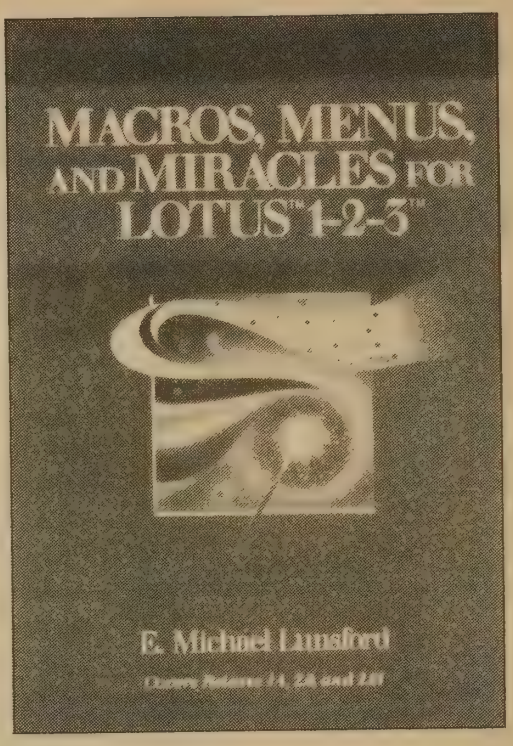
We are not a "price only" store, but we will give you a better deal than any store in the country. The Atari ST is the best desktop publishing value you can buy. In fact we can set you up with computer and the software for less than Ventura software alone. For speed and ease of use the ST blows the Mac away. The ST is an excellent all 'round computer to use for those things DOS makes hard. It's cheaper than buying the software for your PC. **BY THE WAY THE ST RUNS MAC AND IBM PROGRAMS AND 1600 OF ITS OWN.** Consumer Reports says the ST is the best value on the market. And now UNIX programs are available (Idris). You really can't go wrong with an ST, but make sure you buy it from us because we give you the service you deserve. For your Guaranteed best computer value, **CALL US AT (415)845-2000 TODAY!**

SPREADSHEET BUYERS GUIDE



Three From PC Publishing Aid Your 1-2-3 Tasks

Flash-In, Delta Manager and *Deja!* from PC Publishing are three add-in applications that help you when working with *Lotus 1-2-3*. *Flash-In* ($79.95) allows you to copy data from any spreadsheet file on disk to your current worksheet. *Flash-In* opens a window in your spreadsheet in which you can find any part of any other spreadsheet on your disk and bring it to the file your working on. *Delta Manager* ($99.95) offers projection analysis for *1-2-3*. It automatically recalculates and redisplays on one sheet rather than requiring a different sheet for each set of options in your projections. *Deja!* ($129.95) appears on your screen giving you a link between *dBASE* and *1-2-3*, without leaving either program. As you edit your work in *1-2-3*, your *dBASE* data is modified in real time. It also allows you to transfer files between the applications. PC Publishing, 1801 Ave. of the Stars, Los Angeles, CA 90067. (800) 634-4555.

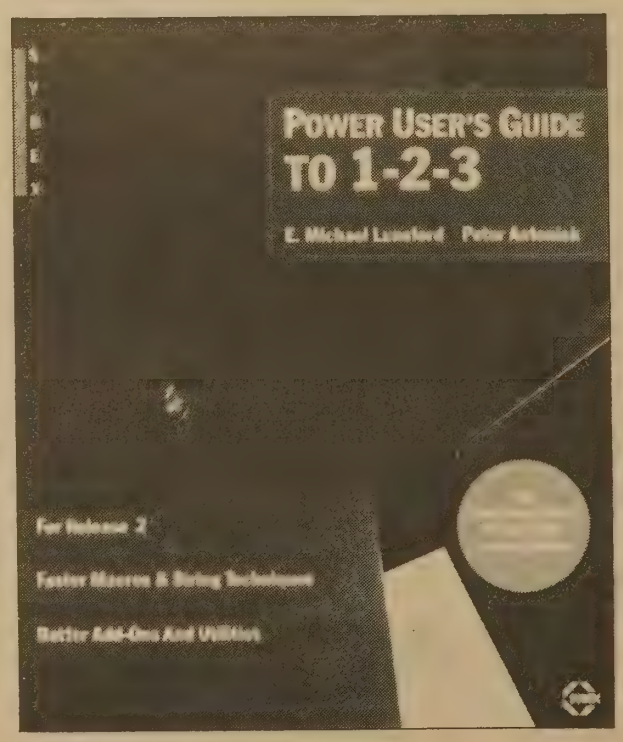


Macros, Menus And Miracles From E. Michael Lunsford

Macros, Menus And Miracles For Lotus 1-2-3 by E. Michael Lunsford and published by John Wiley & Sons is based on Lunsford's best selling software packages, *Macros, Menus And Miracles For Lotus 1-2-3* and *101 Macros For Lotus 1-2-3*. The book explains what macros are, what they do, how they work and how you can write your own macros. The macros in the book range from simple keystroke savers to looped and self modifying programs that automate spreadsheets, speed up work and add menus to worksheets among others. ($22.95) John Wiley & Sons, 605 Third Ave., New York, NY 10158-0012.

CITBAC For Translating dBASE And Lotus Files

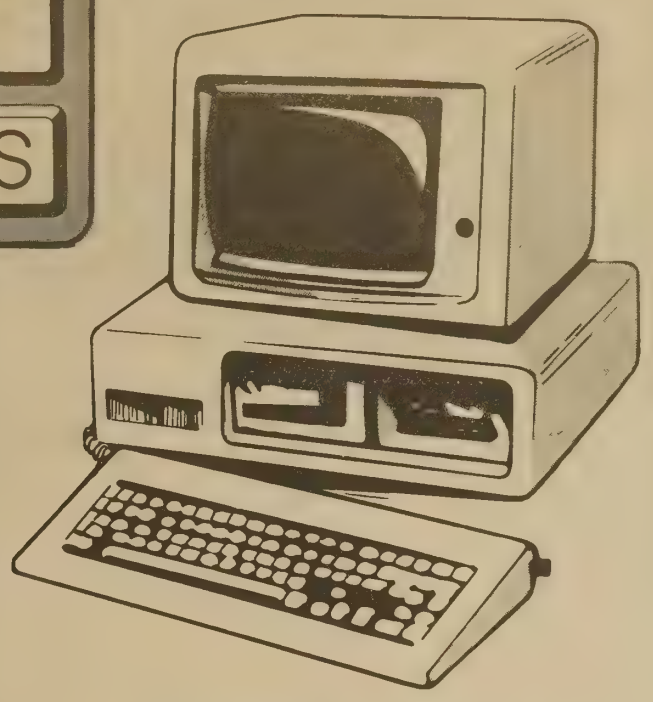
CITBAC a shareware program from David Bartholomew runs *dBASE* programs and Lotus worksheets, translates back and forth between *dBASE* and *Lotus*, prints Lotus graphs and runs DOS and Extended Batch Language (EBL) batch files from an ASCII command file. *CITBAC* connects the two stand-alone programs with a batch mode for unattended operation of repetitive tasks. *CITBAC* can also be attatched to another program to extract data and pass it to *Lotus* or *dBASE*, all while the operator has already left for the day. David Bartholomew, 2746 Darnby Drive. Oakland, CA 94611. ($35.) (415) 530-0776.



Book For 1-2-3 Power Users

Power User's Guide To 1-2-3 by E. Michael Lunsford and Peter Antoniak and published by Sybex is a source of expert techniques, little-known tricks and in-depth treatment of *Lotus 1-2-3*'s features. Topics include, among others: tapping the hidden powers of the function keys, conventions and techniques for macro creation and efficient use of the Copy and Move commands. The book also includes a comprehensive overview and reference guide to after market products now available for *Lotus 1-2-3*. ($19.95) Sybex Inc., 2021 Challenger Drive #100, Alameda, CA 94501.

NORDIC COMPUTERS



Best Prices
Best Service
Best Quality

TURBO 8088 SYSTEM A — $625

10 MHz
2 Floppy Drives
640K RAM
Monographic Card
Monochrome 12" Monitor on Swivel
Keyboard
Serial/Parallel Port
Clock/Calendar

TURBO 8088 SYSTEM B — $839

10 MHz
1 20 MB Hard Disk
1 Floppy Drive
640K RAM
Monochrome Graphics Card
Monochrome Monitor on Swivel
Keyboard
Serial/Parallel Port
Clock/Calendar

386 SYSTEM — $2695

16 MHz—0 Wait State
64K Cache Memory
1024K RAM
Hard Disk Floppy Controller
1.2 MB Drive
EGA Card
EGA Monitor on Swivel
Enhanced Keyboard
Parallel Port/Serial Port
Clock/Calendar

Upgrade options for AT/XT

CGA color monitor w/CGA card	$195
EGA color monitor w/EGA card	$425
Upgrade to enhanced keyboard for XT	$20

COMPONENTS

1200 Baud Modem	$79
2400 Baud Modem	$185
Logitech C7 Mouse	$79
360K Fujitsu Drive	$75
XT Multi I/O	$75
Turbo Motherboard	$85
Monochrome Graphics Card	$55
Enhanced 101 Keyboard	$75
Monochrome Monitor on Swivel Stand	$79
CGA Color Monitor	$275
EGA Color Monitor	$385
EGA Card	$165

286 System A — $949

10 MHz
0 wait on RAM
512K RAM—100ns
Hard Disk/Floppy Controller
1.2 MB Drive
Monographic Printer Card
Monochrome Monitor on Swivel
Enhanced Keyboard
Parallel Port
Clock/Calendar

286 System B — $1489

10 MHz
0 wait on RAM
1024 K RAM
Hard Disk/Floppy Controller
1.2 MB Drive
Monographic Printer Card
Monochrome Monitor on Swivel
Enhanced Keyboard
Serial/Parallel Port
42MB Hard Disk
Clock/Calendar

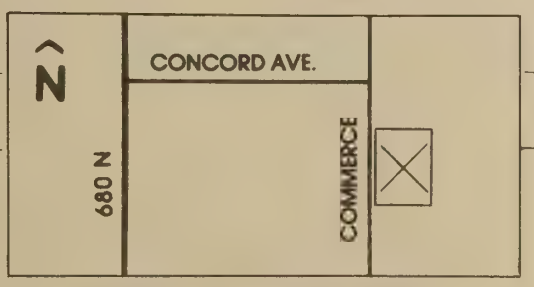
One year warranty on parts & labor on all systems.

Prices subject to change without notice.

DEALER INQUIRIES WELCOME.

2170-R Commerce Avenue, Concord, CA 94520 (415) 687-3050

809-B West Texas St., Fairfield, CA 94533 (707) 425-5998

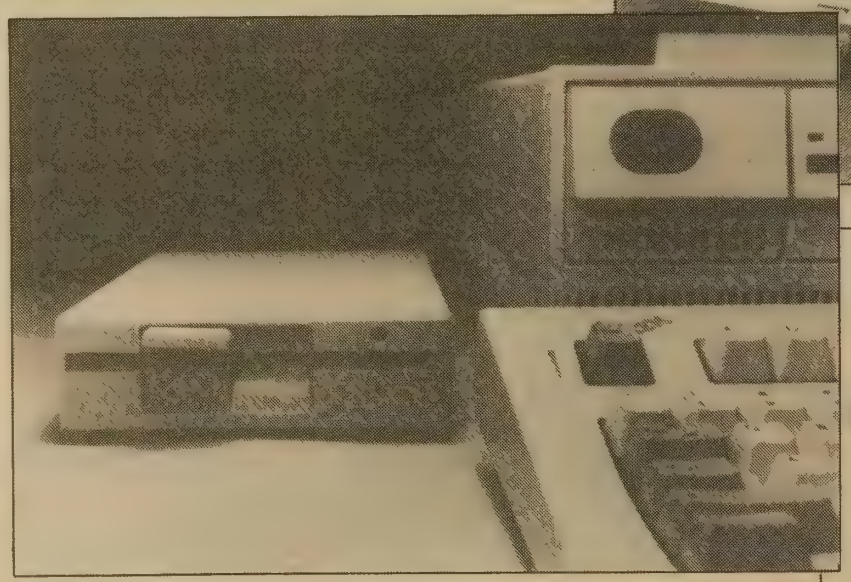


M-F 10:00-6:00 open Sat 10:00-4:00

AT/XT ARE TRADEMARKS OF IBM

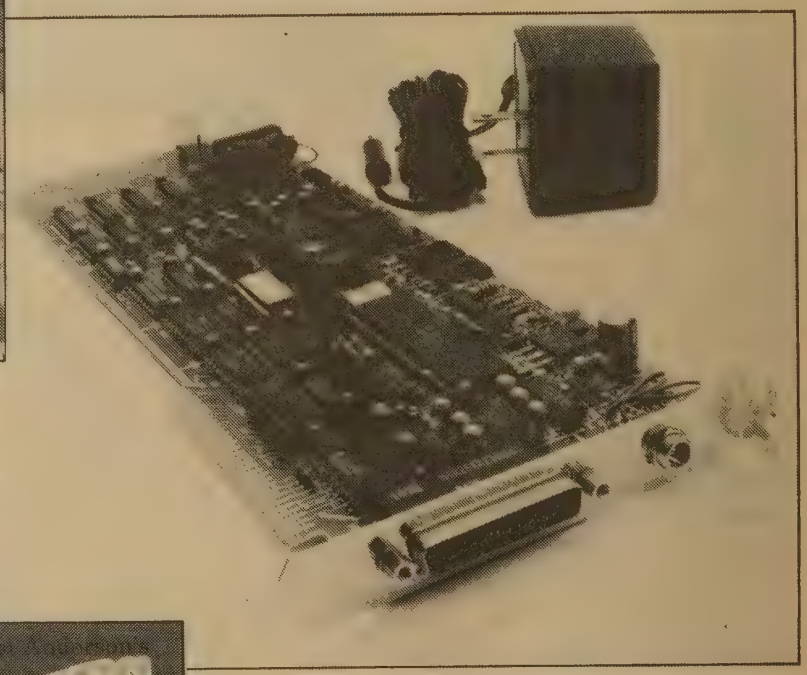
Sharp's PC-4501 Laptop Now Under $1,000

The suggested retail price of the PC-4501 battery equipped laptop from Sharp has been cut by $300 to $995. The PC-4501 comes with a supertwist LCD screen, a 3-1/2" disk drive, a Centronics parallel port and 256K of memory, expandable to 640K. Options include a second disk drive, 300/1200 baud modem, a CRT adapter, an EPROM card, extended memory card and an external 5-1/4" disk drive.



5-1/4" Floppy Disk Drive For PS/2s

The PRS-2 from Pacific Rim Systems is a 5-1/4" external floppy disk drive specially designed for IBM PS/2 Models 25, 30, 50, 60 and 80. The PRS-2 can be used as Drive A on the PS/2 to allow 5-1/4" protected software to boot and run. It is also useful for transferring files from 5-1/4" disks to the PS/2's 3-1/2" disks. ($300.) Pacific Rim Systems Inc., 2570 Barrington Court, Hayward, CA 94545. (415) 782-1017.



24 Hour Communication Capability With The Face Card

The Face Card from FACE TECHnologies, with the applications software provided, can handle data, document and file transfers and electronic mail at the same time as the host PC is engaged in another function or task. Due to an independent power supply the card even works when the PC is turned off, allowing 24 hour communication capability. FACE TECHnologies, 3711 Plaza Drive, Suite 1, Ann Arbor, MI 48108. (313) 662-8008.

Computer Stretches Relieves Stress, Aches

Bob and Jean Anderson, professional stretch consultants and authors of a book on stretching, have designed a pop-up utility that helps the average office worker avoid stress, fatigue and pain through stretching. *Computer Stretching* is a memory resident program of 14 stretching positions which are done while seated at the computer. It can be activated either by a user-defined hot key at any time or by up to four user set timers. ($49.95) FB Systems, Inc., 23524 St. Andrews Court, Auburn, CA 95603. (916) 268-1122.

The Computer Store

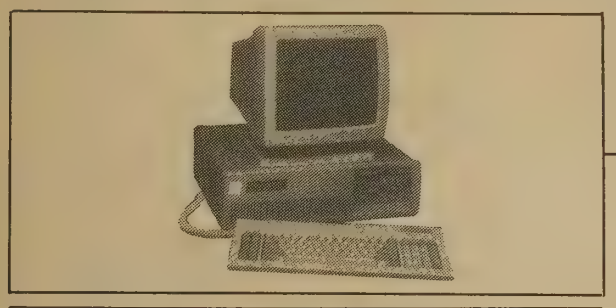
Now 2 Locations To Serve You

AT 386 16MHz 0 Wait

$1999

16 MHz 0 Wait System Clock Speed
1 MB RAM (Expandable to 8MB on Board)
8 Expansion Slots (4 8/16bit, 4 8bit Slots)
200 watts Power Supply (110/220V AC)
1.2MB Floppy Drive
Hard/Floppy Drive Controller
101 Keys Enhanced Keyboard
Hi-Res (720x350) Amber Monochrome Monitor
Monochrome Graphics Card (Hercules Compatible)
Printer Port
Socket for 80287 Math Co-Processor
Battery Back-Up Clock and Calendar
Slide-In Case With Reset & Turbo Button & LED

ONE YEAR WARRANTY PARTS AND LABOR

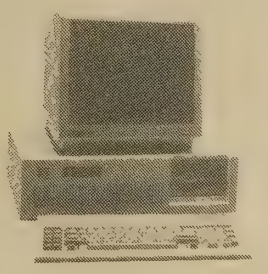


AT 286 10MHz 0 Wait

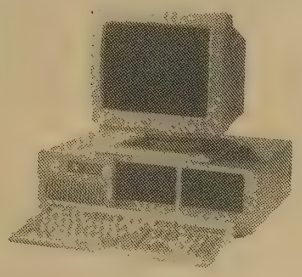
$899

6 and 10 MHz 0 Wait System Clock Speed
512KB RAM (Expandable to 1MB on Board 640/384KB)
8 Expansion Slots
200 watts Power Supply (110/220V AC)
1.2MB Floppy Drive
Hard/Floppy Drive Controller
101 Keys Enhanced Keyboard
Hi-Res (720x350) Amber Monochrome Monitor
Monochrome Graphics Card (Hercules Compatible)
Printer Port
Socket for 80287 Math Co-Processor
Battery Back-Up Clock and Calendar
Slide-In Case With Reset & Turbo Button & LED

ONE YEAR WARRANTY PARTS AND LABOR

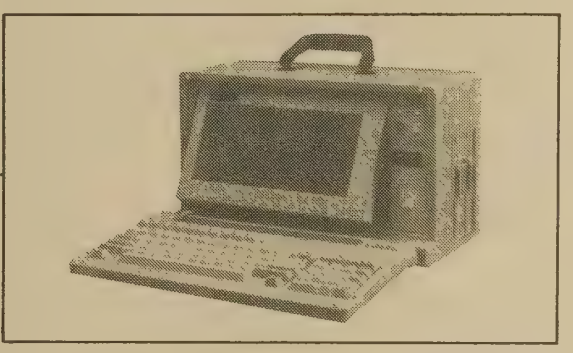


Call The **Computer Store** For All Your Network Needs



4.77 and 10/12 MHz System Clock Speed
256K RAM Expandable to 640K
8 Expansion Slots
150 watts Power Supply (110/220V AC)
360KB Floppy Drive
Floppy Drive Controller
AT Style Keyboard
Hi-Res (720x350) Amber Monochrome Monitor
Monochrome Graphics Card (Hercules Compatible)
Printer Port
Socket for 8087 Math Co-Processor
Slide-In Case With Reset & Turbo Button & LED

ONE YEAR WARRANTY PARTS & LABOR



***All Systems Below Include 20MB Hard Disk**

- LCD AT 386 Portable **$2999**
- LCD AT Portable **1999**
- LCD 10MHz XT Portable. **1499**

ONE YEAR WARRANTY PARTS & LABOR

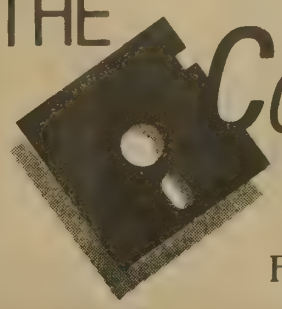
Portable 386/AT/XT

XT 8 MHz **$449**

XT 10 MHz **$499**

XT 12 MHz **$549**

THE COMPUTER STORE



429 Castro St.
Mt. View, CA 94041
(415) 968-3466/7

Mon.-Fri.: 10-7
Sat: 11-5
FAX NO. **(415) 968-2618**

CALL FOR OTHER PRODUCTS NOT LISTED
DEALER INQUIRIES & CORPORATE P.O.'S WELCOME

5000 Geary Blvd.
(corner of 14th Ave.)
San Francisco, CA 94118
(415) 387-PCPC

Prices subject to change without notice

Late But Not Forgotten

As promised, here are our spiffy new user group listings, updated for your computing convenience.

As expected, our deadline came and went without a noticeable letup in the deluge of new listings in our mailbox, so we'll take a look at some of these recent arrivals now.

Ed Ely of the **San Francisco/Oakland** chapter of the **AT&T PC6300 Users Group** calls in, aghast at having missed his deadline, to tell us that the group is alive and well. It meets on the first Wednesday of each month, alternating between locations in Oakland and San Francisco. Meetings are at 6:30 pm, and you're invited to call either Ed (415/836-0910) or president **Joe Mahoney** at (415)586-8376. Ed says it's an enthusiastic and growing group which enjoys good support from AT&T itself.

Diehard **Morrow** users will be delighted to know that **BAMDUA (Bay Area Micro Decision Users Association)** continues to offer support to users of these gone-from-the-stores-but-not-from-the-desktop machines. Meetings are held on the third Thursday of the month at the Albany Senior Center, 846 Masonic Street in Albany, at 7 pm. If you'd like more information, the club's voice information number is (415)534-4257; its bulletin board can be accessed at (415)654-3882. Thanks to **Ronald Jacobs** for the update.

Loretta Colbourn of the **Bay Area Atari Users Group** informs us that the group's BBS, which she describes as "one of the most active in the Santa Clara Valley," has a new number at (408)247-1257. She'd also like to pass along the information that general group meetings are held on the first Monday of the month at 7 pm at Bracher School. The school is located on the corner of Bowers and Chromite in Santa Clara. The group also has an ST Special Interest Group which meets at the same location at 7 pm on second Tuesdays; the 8-bit SIG meets at Hewlett-Packard, Wolfe and Pruneridge in Santa Clara, at 7 pm on third Tuesdays.

Loretta is BAAUG's secretary for 1988, and she invites you to call her for further information at (408)972-4456. Or you can call **Frank Nagle**, the group's president, at (408)241-0585.

The **Amiga** fans are out in force this month, with two groups reporting. **ACCESS**, the **Amiga and Commodore Computer Enthusiasts Society**, now meets on third Tuesdays in the community room at Homestead Savings and Loan, 999 E. Stanley Blvd. in Livermore. Meetings are at 7:30 pm, according to secretary **Ron Kremkow**, who awaits your calls for more info at (415)449-1784. Meanwhile, Vallejo now has its own Amiga-specific group in **VAMP**, the **Vallejo AMiga People.** Meetings take place at Software 1st in the Vallejo Corners Shopping Center on the second Tuesday of the month. If you'd like to know more, the person to call is **Bill Braun** at (707)554-0263.

For a variation on the theme of Macintosh evangelism, there are now two chapters of the **Christian Macintosh User Group**, according to **Rick Thrasher**, CMUG's director. The San Francisco chapter meets on second Thursdays and offers SIGs in Bible study and desktop publishing. The Silicon Valley chapter meets on first Thursdays in San Jose. Both groups offer a newsletter and technical support for members. If you're interested, give Rick a call at (408)437-1913.

Meanwhile, **Ruth Stever** of Southern California's **MacValley** reports that the group's April meeting, scheduled for April 19 in Burbank High School's cafeteria, will feature a presentation by **Ashton-Tate** of its new spreadsheet, *Full Impact.* The meeting's at 7:30 pm, and you can find out more by calling Ruth at (818)848-1277.

And out in the San Joaquin Valley, **Luther Myser** sends word that there's a new computer club out there in beautiful Manteca—**CUE (Computer Users and Enthusiasts).** The club is predominantly MS-DOS oriented, but offers SIGs for users of other machines. For more info you can call Luther at (209)858-4401, or check out the club's BBS at (209)239-9853.

Moving out into the online universe, we receive email from **Samuel Bassett,** who'd like to invite **UCSD Pascal** users to check out **USUS**, the **UCSD Pascal Users' Society**, which meets on CompuServe (GO MUSUS). Samuel, who describes himself as "the current Chaircritter of the organization," says "We serve the UCSD p-System community, including users of Apple Pascal, the Pecan Power System, Modula-2, Fortran, and soon C. We have a quarterly newsletter and semi-annual meetings." Samuel can be reached at (415)454-7282; he can also be reached at a host of electronic addresses including **samlb** on The WELL (415/332-6106), **71735,1776** on CompuServe, and **(hplabs,ptsfa,lll-crg)!well!samlb** on UUCP.

Tim Spofford reports a new number for the **Recovery BBS**, which offers message sections for Alcoholics Anonymous, NA, CA, Alanon/ACA, SA, SLAA and others. It operates at 300/1200/2400 baud at (415)441-2539.

Marc Schuyten of Corona would like interested parents to know about **The Parent SIG**, which he and his wife **Linda** started in 1980 as an all-volunteer group of parents concerned about the problem of child abuse. The Parent SIG now has its own BBS to combat the sexual abuse, exploitation, and molestation of children. **Families-Naturally** operates at (714)735-4279 at 300/1200/2400 baud, 8-N-1, 24 hours a day.

Joe Commodore of San Andreas has renamed his **Motherload 64** board. It's starting a new life as **Silicon Realms**, and offers support for Commodore PET and Plus/4 users (an orphaned group if ever there was one), as well as a Commodore Programmer's board, continuing and short story boards, and fantasy/adventure role playing. It's running on a Commodore 64 from 9:30 pm till 6:30 am at (209)754-5530. For the time being it runs at 300 baud, but Joe says 1200 baud is coming Real Soon Now.

Glenn Taylor of Santa Rosa isn't Joe Commodore, but he might as well be. He runs the **Cyborg-64** online user group, supporting users of the Commodore 64, 128, and Amiga computers. The board operates 24 hours a day at (707)526-6464 at 300-2400 baud. It features 65 megs of downloads.

Graphics enthusiasts are invited to check out **Art Canfil's tsunami bbs**, (415)ram-2-ram. Its overall theme is graphics compatibility, and there are GIF, *MacPaint* and other files available. The board is free, and runs 24 hours a day at 300-1200 baud.

And **Wanda Grycz-Hernandez**, the Information Systems Manager for the City of Richmond, sends an update on the **City of Richmond BBS**, which offers a variety of public interest information on city activities and downloads of information files. The board operates while the city offices don't, essentially: 6 pm to 6 am on weekdays, and 24 hours a day on weekends. Parameters are 8-N-1, and the board supports 300 and 1200 baud transmissions. The number is (415)620-6500.

On that note, I'll close for another month. Please keep those communiques coming—email to **microx** on The WELL (415/332-6106) and US Mail to User Group Network, 5951 Canning Street, Oakland, CA 94609.

BULLETIN BOARDS

INTERNATIONAL

FidoNet Argentina (054). (011) 541-22-419. 8-N-1 3 PM-11 AM PST. The 1st fido node in Argentina has over 450 subscribers. Specializes in issues from S.A. PD software library to d-load. Sysop: Pable Kleinman

Cassia Express. (065) 344-9163. 300/1200/2400 24 hrs. Singapore. Sysop: N.M.Rahman

Remote Bulletin Board (Singapore). (065) 445-1646. 9600/2400/1200 24 hrs. 218 MB Online (IBM upload/download). Sysop: Umar A. Rahman

Terrapin Station. (203) 656-0134. Grateful Dead Board. Sysop: Klaus and Gretchen Bender.

209

Bertha Board. (209) 239-9853. 300/1200/2400 8-N-1 24 hrs. MS-DOS, others. Some emphasis on programming. Up- & downloads. Free. Registration required. Sysop: Kenneth Roach

Silicon Realms. (209) 754-5530. 300/(1200 Soon) 9:30AM to 6:30AM.Formerly Motherload 64. Commodore, PET & Plus/4. Programmers board, Continuing & Short Story boards, FRPG. Sysop: Joe Commodore

213

Ashton-Tate Support. (213) 538-6196. Free technical support, answers to questions about Ashton-Tate software products.

Carrier Point Information. (213) 423-4999. 1200/2400 8-N-1 All but 1:30-3:30 PM. TBBS multi-user system. Operating 10 lines, 9 in rotation. All lines support 300/1200/2400 baud rates.

Chat Line. (213) 534-4311. Multi-line, Multi-user interactive group & private forums. Downloads, Database.

Dial-Your-Match. (213) 539-2448. Lomita.

Dial-Your-Match. (213) 633-4349. Downey.

Dial-Your-Match. (213) 461-9899. Hollywood.

Dial-Your-Match. (213) 467-6776. Hollywood.

Dial-Your-Match. (213) 558-4336. Culver City.

David's Amazing BBS. (213) 459-5891. Conferencing (like the Well, but easier to use). Electronic bar; talk; matchmaking; 5 lines; unique software. Sysop: David Dennis

ICN. (213) 204-0646. 2400/1200/300 24 hrs. The place to buy/sell/trade collectibles (stamps, books, etc.)

Information Symposium. (213) 258-5086. 300/1200/2400 8-N-1 24 hrs. Serving the Info. Professional, Tech. Info, M.I.S. Employment. MS-DOS; OS/2; graphics. Password req'd for access is "Micro." Sysop: William Bloomer

Lynzie's Motherboard. (213) 650-0519. 300/1200/2400 8-N-1 24 hrs. Multiinterest. Social events for users. If you're looking for a discriminating BBS, this is the place to be. Sysop: Lynzie Flynn

Oil Patch PC Board. (213) 427-5980. 300/1200 8-N-1 Eves. only. Exclusively C. Libraries; utilities; source code; tutorials. Sysop: Rick Shoop

Southland News. (213) 402-4079. 24 hrs. An online newsmagazine w/ general news, comments, entertainment, computer news show, club & swap meet listings.

The Great American Audio/Video Board. (213) 469-6542. 300/1200 8-N-1 Eves. Reviews, essays, buyers guide, instruction. Sysop: Keith Bass

Westside. (213) 933-4050. 3/12/2400 8-N-1 24 hrs. 17 lines w/chat, library, matching. Public & E-mail.

Beaver Creek. (213) 437-1410. 8-N-1 All but 4-9 PM. Sysop: John Campbell

Time-X-Change. (213) 329-3922. 300/1200 8-N-1 24 hrs. Timex-Sinclair & CP/M users Free Sysop: Dave Clifford

Electronic Media Network. (216) 241-2612.

IBM • HP • SONY

QMD Invites You To Have It Your Way!

Desktop Publishing Solutions to Fit Your Taste

NEW FROM

TOSHIBA

T5100 & T3200
In Stock for Pick Up Today

- 386 Intel
- 40 MB HD
- 2 MB RAM
- EGA Plasma
- 286 Intel
- 2 Expansion Slots (IBM)
- 40 MB HD

Best Prices

INTRODUCING THE AST PREMIUM/386

INPUT **OUTPUT** **CPU**

SCANNERS
Princeton Graphica . . $895
HP Scan Jet $1275
Microtech 300A $1595

MICE
Logi Tech Mouse with Driver Software $65
Logi Tech Mouse (Bus) $99
Genius Mouse $49
Microsoft $90

PLOTTERS & DIGITIZERS
Hitachi 11 x 11 Tablet $470
Roland DXY-980 with Digital Display $1270
Summasketch 1201ps $399

INTEL CHIPS
80387-20 . . . . . $725
80387-16 . . . . . $475
80387-10 . . . . . $299
80387-8 . . . . . $245

LASER PRINTERS
HP Laser Jet II $1625
HP 1 Meg $349
HP Toner $89
Tray & Fonts . . . . . CALL
Destiny Laser Act I 1.5MB $1595

SOFTWARE
ALDUS Pagemaker . . $479
Ventura Publisher . . $479

COMPUTERS
386-20/60MB $5410
386-20/130MB $6799
386-20/300MB $9449
Portable 386-40 . . . . . $5649
Portable 386-100 . . . . . $7049

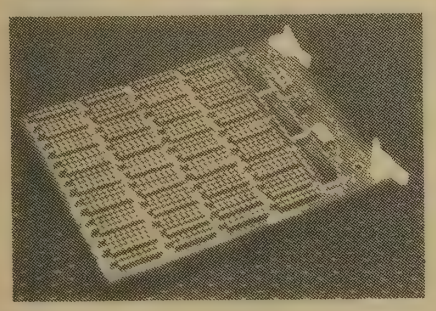
PS/2 Model 30, 2-3½" $1199
PS/2 Mod. 30, 20MB . . . $1709
PS/2 Mod. 50, 20MB . . . $2649
PS/2 Mod. 60, 44MB . . . $3729
PS/2 Mod. 80, 40MB . . . $4799
8503 . . . . . $178
8513 . . . . . $499
8512 . . . . . $418

Premium 286 Mod. 80 $CALL
Model 120 . . . . . $CALL
Model 140 . . . . . $CALL
Model 170 . . . . . $CALL

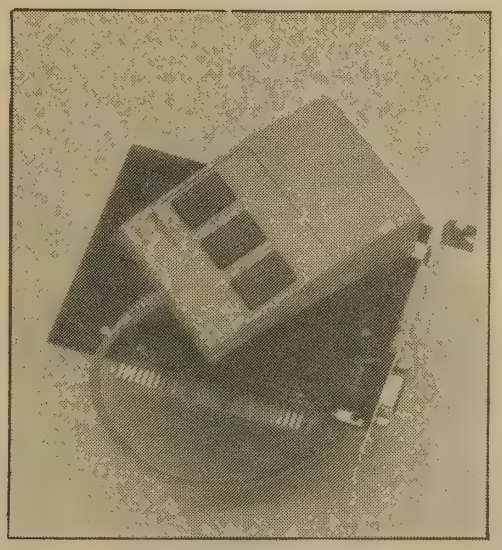
PRINTERS
EPSON
LQ 500 . . . . . $369
FX 286E/EX 1000 . . . . . $449/545
LQ 850/1050 . . . . . $545/659
LQ 2500 . . . . . $899
LQ 800 . . . . . Special . . . $299
TOSHIBA
321 SL/341 SL $469/699
PANASONIC
KX-P1592/KX-P1595 . . . . . $445/495
SEIKOSHA
MP1300 300 CPA $285
MP5300 132 COL $479
Citizen 55/45 . . . . . $509/469
Diconix Portable Printer $359
IBM ProPrinter II/X24 . . . . . $379/589
Ribbons in for all printers

SOFTWARE
IBM Displaywriter IV $285
Lotus 1-2-3 . . . . . $299
Lotus Symphony $399
dBase III Plus $365
WordPerfect 4.2 . . . . . $205
IBM PC DOS 3.3 . . . . . $92
MS DOS 3.3 . . . . . $86
PC MOS Single user/Multi $169/512

SPECIALS ONLY FROM QMD
Pacific Data Memory Boards for HP LZ II
0K $189
1 Meg $299
2 Meg $729
4 Meg $1349



SPECIAL OF THE MONTH
LOGITECH



Logitech Mouse w/EGA . . . $225

TAPE BACK UP SYSTEMS
Irwin 110 10MB Internal $199
Irwin 120 20MB Internal $355
Archive 125 MB $795
Archive XL40 40MB Internal $335
Archive ST600 60MB Internal $499
3M DC-2000 Tape Cartridge $21
Tandberg 3309 60MB Internal $535
Everex 60MB Internal $665
Everex 60MB External $695
Sysgen Int DI-SY401 . . . . . $395
Mountain . . . . . CALL
Wangtech . . . . . $CALL

LAP TOP COMPUTERS
NEC ZENITH TOSHIBA
Toshiba 1000 . . . . . $799
Toshiba T3100-20 . . . . . $2995
NEC Multispeed-EL/HD $1595/2399

HARD DISK DRIVES Seagate
Seagate ST225 20 MB w/control . . . . . $26.
Seagate ST238 30MB w/control $299
Seagate ST251 40MB AT $399
Seagate ST 4096 . . . . . $790
Miniscribe 6053 44 Meg AT $575
Miniscribe 6085 71 Meg AT $799
Miniscribe 40 MB 3650 . . . . . $369
Miniscribe 20 MB 8425 . . . . . $199
Maxtor 114C Meg $1795
Mountain Drive Card 30MB $579
Plus Hardcard 20MB/40MB $525/799

POLICIES:

- Blue Label or Next Day Delivery Available
- Letters of Credit & Corporate Accounts Accepted
- We accept certified checks, cashier checks, wired funds
- All orders over $500 must be paid by cashier check.
- Minimum order $100.
- Allow 1 week for personal & company checks (maximum amount $500)
- Prepaid orders get 1% discount
- Add 3% for Visa/Master Card Purchases
- Allow one week for shipping
- 15% Restocking Fee On all return merchandise
- Customer pays return merchandise shipping
- All prices subject to change without notice
- Add 4% for American Express Card Purchases
- HP is a registered trademark of Hewlett Packard. AST is a registered trademark of AST. Compaq is a registered trademark of Compaq. IBM is a registered trademark of International Business Machines.

QUALITY MICRO DISTRIBUTORS

VISA master charge

(213) 478-9811
800-553-3339 in CA orders only
FAX (213) 312-5065
1-800-MICRO 86 (642-7686) in U.S.
West Coast Office 11651 W. Pico Blvd., Los Angeles, CA 90064
East Coast Office 313 Post Ave., Westbury, NY 11590 **1-800-338-9444**
For Technical Services Call Watson Line (213) 478-7004
QUANTITY PRICES AVAILABLE

TOSHIBA • MINISCRIBE • ZENITH • LOTUS • WEDGE • COMPAQ • NEC • AST • INTEL • EPSON • TEAC • SEAGATE

IRWIN • ARCHIVE • MINISCRIBE • KURTA

LASER PRINTING FOR IBMs? IT'S HERE!

Now you can laser print your documents conveniently. Scheduled appointments mean no waiting. And you can choose either the LaserWriter or the all new 600 dpi printer for only $1 per page. Call today and find out why we're called The *Cooperative* Type.

- Ventura
- PageMaker
- and more!
- Microsoft Word
- Word Perfect
- Macintosh, too.

LASER PRINTING

Full Service
Design, Paste-up, Desktop Publishing

Computer/Laser Rental
$6/hour, 30¢/page

600 dpi Varityper VT-600
Only $1/page–Four times better than LaserWriter–Never use a Lino again!

Camera
PMTs, halftones & more

Disk Conversion
IBM - CP/M - Mac

THE COOPERATIVE TYPE 415/843-8973
2490 Channing Way, Suite 401 Berkeley, CA 94704

Resellers Only

AT 80286 6/10 MHz, 0KB case, power supply, keyboard $425

Same as above plus 6/8/10/12 MHz $495

XT Turbo, 4.77/8MHz 0KB, sliding case, power supply, keyboard, FCC approved unit $199

FCC approved complete systems available

ICON

Mylex 386 16MHz	CALL
Mylex 386 20MHz	CALL
DATA 286 6/8/10/12 MHz	$315
DTK 286 Motherbrd	$275
DTK 8088 Motherbrd	$75
Sony Multiscan 1302	$579
Sony Multiscan 1303	$499
Monographics adapter	$39
Colorgraphics adapter	$38
Enhanced graphics adp.	$105
AT HD/FD Controller	$115
AT Floppy Controller	$44
AT Multi I/O	$39
AT Cases	$55
AT Power supply	$65

415-659-1293

Exporters Special

IBM
COMPAQ
Apple
H.P. Laserjet
TOSHIBA FAX MACHINES

Best Prices!

BEST WHOLESALE PRICES

NOW DISTRIBUTING

MODEMS - W/BIT SOFTWARE
- Pocket Size/1200 BPS
- Internal 2400 BPS

LOGITECH MOUSE
- Super Low

EXT PS/2 DRIVES
- 360 KB
- 1.2 MB
- 40 MB Tape Back Up

FOR LOW, LOW PRICING CALL:

(415) 341-6351

APPLE · IBM · COMPAQ · ZENITH · HP · TANDON

Lucas International
A DISTRIBUTING COMPANY

WANTED!

USED COMPUTERS

We pay CASH for any quantity of leading manufacturer computers & peripherals.
Call purchasing for your computer appraisal
(415) 968-6811
(415) 968-USED

icb INTERSTATE COMPUTER BANK

1200 8-N-1 23 hrs. Provides link between employers and high-tech and highly skilled professionals.

Planet Zed. (213) 434-2933. 300/1200/2400 8-N-1 24 hrs. Music oriented, for all computer types. Record reviews, coming events. Nice graphics.

Grey Matter BSS & RCP/M. (213) 971-6260. 300/1200/2400 24 hrs. Televideo and Timex/Sinclair support. Sysop: Ed Grey

Lynzie's Motherboard. (213) 650-0519. 300/1200/2400/9600 8-N-1 24 hrs. Matching, group and private chat system, local social events. W.Hollywood. Sysop: Lynzie Flynn

Lynzie's Motherboard. (213) 659-1982. 300/1200/2400/9600 8-N-1 24 hrs. Matching, group and private chat system, local social events.West L.A. Sysop: Lynzie Flynn

Lynzie's Motherboard. (213) 650-6172. 300/1200/2400/9600 8-N-1 24 hrs. Matching, group and private chat system, local social events. Sysop: Lynzie Flynn

408

Bay Area Atari. (408) 249-7722. 300/1200 24 hrs.

Bay Area BBS. (408) 723-7238. 300/1200/2400 Several "live" doors including adult & X-rated. Sysop: Jim Acker

Byte Bandits of America. (408) 374-3974. 300/1200 24 hrs. Free. MS-DOS Sysop: Sam C. Brown

BYTE Bandits of America - TRS 80's. (408) 374-5139. 2 monthly meetings in Campbell, CA

Campbell Chapter of 64/More Commodore. (408) 946-6154.

Computer Pages. (408) 247-5500. 300/1200 24 hrs. Multi-line FREE! First on-line shopping guide and directory in Silicon Valley. Sysop: Computer Pages

Computer Tech. (408) 946-3559. 1200/2400. BBS for computer groups. File transfers. All free.

Cupertino Chapter of 64/More Commodore. (408) 946-6154.

Dial-Your-Match #296. (408) 720-0724. 300 8-N-1 24 hrs. Sunnyvale.Matching and e-mail.5 boards. Verification required. No fees.

Digit Mailbox. (408) 946-6154. 3-9600 24 hrs. All welcome. Amiga run. Official 64/MORE BBS.

Matchmaker San Jose. (408) 248-5755. 300/1200 24 hrs. The ultimate pen pal system. Make a date, meet a friend, have the time of your life. Type "mm" at login. 300 plus calls/day. Sysop: The Matchmaker

Non-Smokers BBS. (408) 298-4277. 300/1200/2400 8-N-1 24 hrs. Restaurant/hotel guide. Health information.

North Valley Chapter of 64/More Commodore. (408) 946-6154.

Pacific Exchange Multiline. (408) 946-8561. 1200/2400. Large IBM file selection, conferences, multi-node chat.

PC-Shareware. (408) 270-4084. 1200/2400 8-N-1 24 hrs. Registration required. Dedicated to shareware for IBM PC. Over 50 megs of most popular & latest available. Sysop: Bob Allen

Public Domain Software Special Interest Group (PDS-SIG). (408) 270-4085. 1200/2400 8-N-1 24 hrs. One of largest selections of PD & shareware PC software.Over 250 megs. of files. Registration required. 64 directories.

San Jose Chapter of 64/More Commodore. (408) 946-6154.

Silicon Valley FOG. (408) 738-1071. 300/1200/2400 8-N-1. Message system & 42 Megs of CP/M & MS-DOS files. Sysop: Bob O'Connor

ST Hotline. (408) 244-2493. 9600 24 hrs. Atari ST only. 110 Meg hard disk.

Stock Market. (408) 733-9341. 300/1200 8-N-1 24 hrs. Provides precise, reliable price forecasts for 6000 NYSE, AMEX & OTC (NMS) stocks. Multi-line, multi-user system.

S-100. (408) 262-5150. 300/1200/2400 8-N-1. CP/M & MS-DOS libraries.

The Dungeon. (408) 992-0846. 300/1200 8-N-1 24 hrs. All adult, registration required. Sysop: Sir Dep

The Guild. (408) 988-4004. 300/1200/2400 24 hrs. 160 MB online. Hardware SIG's, BBS info, Professional Certification Testing. Sysop: Nat'l BBS Soc. Staff

Timex/Sinclair BBS of Silicon Valley. (408) 735-7390. 300/1200 8-N-1 24 hrs.

Towards 2000!!. (408) 773-9759. 300/1200 8-N-1 24 hrs. IBM oriented. No Fee. Message base. Sysop: Keith Proctor/Chris III

TRS-80. (408) 374-5139. 300/1200 24 hrs. Tandy. Free. Sysop: Sam C. Brown

Attention

Dealers, VARS, Consultants and other West Coast Computer Resellers

MicroTimes, California's Computer Magazine

Announces The Premiere Of

Western MicroMarket

It's About Time

Western MicroMarket is a new trade magazine just for you—the computer hardware, software and service resellers that make it happen in the Western United States.

It's About Your Business

Western MicroMarket will deliver in-depth reports on the HOT ISSUES you face everyday: Distribution, Financing, Sales Management, Clones, New Products, Service, Your Competition, Vertical Applications and MUCH MORE.

You'll get the scoop on the products ready to hit your market with timely, local coverage. Take advantage of distributor and manufacturer's announcements about special spiffs and marketing promotions that will help you build your sales and profits.

It's About You

Every issue of Western MicroMarket will feature an action-packed DEALER FORUM, where you can share your opinions about your business with over 5,000 other resellers in the most dynamic computer resale market in the country. So, get your first issue and "Send Em' A Message."

Best Of All . . . It's Easy To Get

Western MicroMarket will be delivered FREE to your office every month when you qualify as a computer products reseller in the Western United States. If you're a computer reseller, but working East of the Rockies, you can still keep-up on the hottest computing market in the nation by purchasing a year's subscription to Western MicroMarket for $120 (First Class Postage). It's not so much when you consider the company you'll be keeping.

So fill out the coupon (signature required) and we'll send you the SPECIAL PREMIERE EDITION of your trade magazine, Western MicroMarket.

☐ **Yes,** I'm a computer products reseller in the Western United States. RUSH my copy of the Premiere Edition of Western MicroMarket to my business address below to begin my subscription.

☐ **Yes,** I'm a computer products reseller working East of the Rockies. RUSH my copy of the Premiere Edition of Western MicroMarket to my business address below. Enclosed is a check for $120.00 to cover my First Class subscription.

THREE QUICK QUESTIONS

Which One Category Best Describes Your Company?

- ☐ 1-1 Multi-Brand Store
- ☐ 1-2 Software Specialty Store
- ☐ 1-3 Office Machine Dealer
- ☐ 1-4 Dist./Mfgr./OEM/ Other Supplier
- ☐ 1-5 Systems Integrator/ Consultant
- ☐ 1-6 Value Added Reseller
- ☐ 1-7 Value Added Dealer
- ☐ 1-8 Video/Record/ Software Store
- ☐ 1-9 Other Mass Merchandiser/ Dept. Store
- ☐ 1-0 Other _____

Which One Category Best Describes Your Job Title?

- ☐ 2-1 Owner, Partner, President
- ☐ 2-2 Vice President, Gen Mgr., Director
- ☐ 2-3 Marketing/Sales/ Merchandise Mgr.
- ☐ 2-4 Buyer
- ☐ 2-5 Branch, Store, or Dept. Mgr.
- ☐ 2-6 Salesperson
- ☐ 2-7 Technical Support/Repair
- ☐ 2-8 Consultant
- ☐ 2-9 Other _____

Which Best Describes Last Year's Gross Annual Dollar Sales For Computers And Related Equipment At Your Location?

- ☐ 3-1 Less Than $250,000
- ☐ 3-2 $250,000 to $499,000
- ☐ 3-3 $500,000 to $999,000
- ☐ 3-4 $1,000,000 to $2,499,999
- ☐ 3-5 $2,500,000 to $4,999,999
- ☐ 3-6 $5,000,000 to $9,999,999
- ☐ 3-7 Over $10,000,000

Date ___/___/___

Signature (required) _____

NAME (Please Print) _____

Office Street Address _____

City _____ ST _____ ZIP _____

Phone (_____) _____-_____

Publisher reserves the right to serve only those who meet qualification.

Thank you.
Send Completed Form To:

Western MicroMarket
Subscription Manager
5951 Canning Street
Oakland, CA 94609

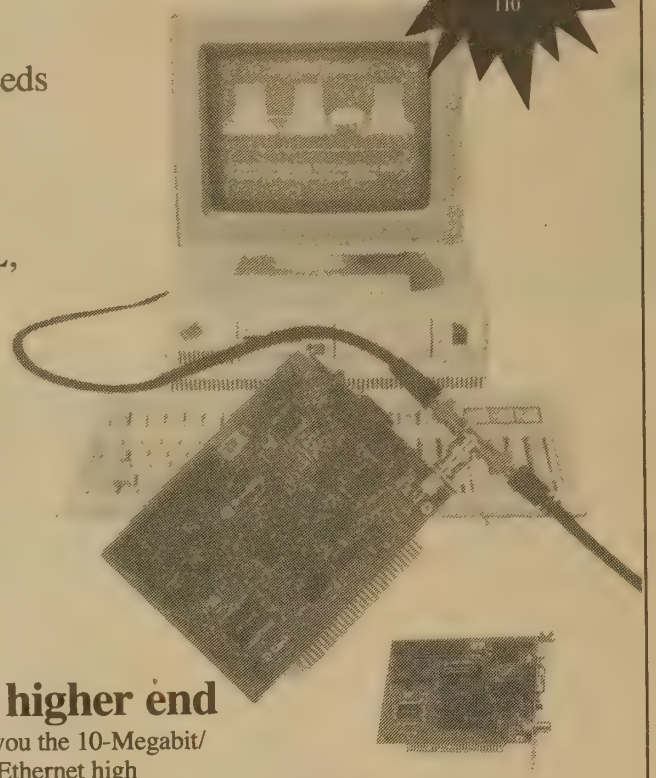
(415) 652-3810

D-Link®

Local Area Network

DEALERS: It's Your Golden Opportunity To Get In On The Ground Floor! Call For More Info or See Us At West Coast Computer Show Booth #108, 110

The Total Solution
To Meet Your Ever-Changing Needs

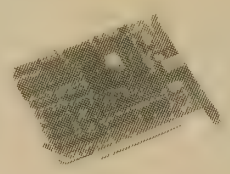


The Lan Of Two Ends

- Provides Connectivity IBM PS/2 MICROCHANNEL, IBM XT/AT/386, and Sun Micro NFS and All Compatibles.

The lower end

Gives you the ease of installation and the low cost. And a reasonable 1-Megabit/second data transfer rate. For the IBM PC/XT/AT and Personal System/2™.



- Bus topology and twisted-pair wire cable architecture for installation flexibility
- Half-sized network interface card and modular phone jacks for instant installation
- Extensive use of VLSI for hardware reliability

The higher end

Brings you the 10-Megabit/second Ethernet high performance to let you meet the LAN industry standard. For the IBM PC/XT/AT and Personal System/2™.

- Compliance with the Ethernet/IEEE 802.3 industry standard
- On-board transceiver for usability with both the Cheapernet thin cable and the thick cable for Ethernet connections

- Half-sized card with extensive use of VLSI chips for enhanced hardware reliability

And, with their hardware compatibility, both choices give you the extra bonus of running the popular NetWare networking operating system, the IBM PC LAN Program, and other well-known application software.

Complete Solutions Start At Only $295

Call For More Information • Call For Dealer/Corporate Pricing

LASER TODAY International
1924 Old Middlefield Rd.
Mt. View, CA 94043
(415) 961-3015
Fax (415) 961-7631

PRECISION TECH
1701 Fortune Dr., Ste. #N
San Jose, CA 95131
(408) 432-7359
Fax (408) 432-7369

BEST PRICES FOR ADD-ON CARDS & MOTHERBOARDS

MOTHER BOARD

386 MAIN BOARD (0K) (16 MHz)	CALL
TURBO MAIN BOARD (0K) (10 MHz)	$85
TURBO MAIN BOARD (0K) (4.77/8 MHz, 4-LAYER)	85
TURBO MAIN BOARD (0K) (4.77/8 MHz, 2-LAYER)	70
BABY AT MAIN BOARD (0K) (10MHz, 0 WAIT)	275
BABY AT MAIN BOARD (0K) (12MHz, 1 WAIT)	275
AT MAIN BOARD (0K) (10MHz 1 Wait)	255
AT MAIN BOARD (0K) (10MHz 0 Wait)	275
AT MAIN BOARD (0K) (12MHz 0 Wait)	325

XT SERIES

FLOPPY DISK CONTROLLER (2 Port)	$19
384K MULTIFUNCTION CARD	65
I/O PLUS II	45
576K RAM CARD (0K)	27
MULTI-I/O CARD	50
RS-232 SERIAL CARD	25
KEYBOARDS/CASES/P. SUPPLY	CALL

BUILD YOUR OWN XT/AT/386
CALL FOR PRICES & INFO

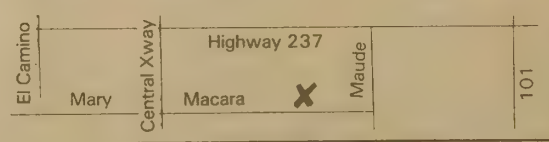
AT SERIES

2.5 Mb RAM CARD (0K) W/EMS SOFTWARE	$80
3 MB MULTIFUNCTION (0K) W/EMS SOFTWARE	120
AT I/O CARD (S.P.G.)	48

AT/XT SERIES

FLOPPY DISK CONTROLLER (360K/720K/1.2M)	$45
CGA/MDA/PRINTER	45
PRINTER CARD	15
MONO/GRAPHIC/PRINTER	45
MGP + FDC (1.2M/360K)	70
EGA + I/O	155
EGA CARD (640x350) w/PRINTER	125
COLOR/MONO/PRINTER	60

SUMMIT MICRO DESIGN
479 Macara Ave. Suite 803, Sunnyvale, CA 94086
Tel: (408) 739-6349 Fax: (408) 739-4643
Dealer Inquiries Welcome
2 blocks East of Mary & Central Expway Mon-Fri 9-6 Sat 10-5



Gavilan User Group. (408) 374-5140. 300/1200. Portables. Free. Sysop: Sam C. Brown

Hotel California. (408) 942-1081. 300/1200 8-N-1 24 hrs. Commodore, Punter D/L. Sysop: Big Foot

LDW Line. (408) 435-1929. 300/1200 8-N-1 8 PM-9 AM. Official BBS of LDW, Inc. features new prod. bulletins, LDW BASIC programer's support, ul/dl, & free spreadsheet for eval. Sysop: Bogdan Blaszczak

PDS-SIG. (408) 270-4085. 2400 8-N-1. Largest selection anywhere of pub. domain & shareware software.

SBUG-BBS. (408) 249-8259. 1200 8-N-1 24 hrs. Membership in SBUG (or registration fee req'd.) Sysop: Jim Gonsalves

The Student's Board. (408) 629-9678. 300/1200 8-N-1 7:30 to 10:30.

PD files, Conference, SIG, All welcome, even if you're not a student. Sysop: Gary Dennis

Topaz BBS. (408) 263-0317. 300/1200/2400 8-N-1 24 hrs. Literature, poetry and personals. Free. Suggestions welcomed. Sysop: Brenda Tyler

415

ABACUS - Atari Bay Area Computer Users Society. (415) 587-8062. 300/1200 24 hrs. Free messages and downloads for 8-bit & ST users. Sysop: Ed Van Pelt

AIDS BBS. (415) 626-1246. 300/1200 24 hrs. Free. All welcome. Mail send/receive on AIDS: please not on other subjs. due to time & access limitations. Library. Sysop: Ben Gardiner

Amiga Addicts Anonymous (AAA). (415) 222-9416. 300/1200 24 hrs. Amiga Chat & Pub. Dom. files. Sysop: Randy Spencer

AUGment - Amiga Users Group of Silicon Valley. (415) 659-9169.

Back Door. (415) 756-6238. 300/1200/2400 8-N-1 24 hrs. Alternative lifestyles information. IBM clone library. Voice validation required for access.

Bay Area's Luv Connection. (415) 387-0529. 8-N-1. Multiline private chat, matchmaking, E-mail, SIG's & numerous pub. boards.

Boot to the Head. (415) 352-5411. 300/1200 8-N-1 24 hrs. Multiplayer games only. Pyroto, Tradewars Taskforce & more.

Catholic Information Network - Santa Clara County. (415) 967-3420. 300/1200 8-N-1 6 PM-8 AM. PC pursuitable through (408) through Santa Clara BBS. No access charge. People of all faiths welcome.

Catholic Information Network - SF. (415) 387-3251. 300/1200 8-N-1 24 hrs. PC pursuitable. Active conferences. Simple registration, no access charge. People of all faiths welcome.

Charisma. (415) 349-6576. 1200/2400 8-N-1 24 hrs. Paradox, dbase, IBM utics. 3500 files. Sysop: Tom Swegles

Commodore Connection. (415) 458-1005.

Dial-Your-Match. (415) 964-3255. Mountain View.

Dial-Your-Match. (415) 991-4000. Daly City.

Dial-Your-Match, #34I. (415) 537-0666. 300/1200 24 hrs. Nationally networked, meet the 250 callers in the date-a-base. Sysop: Matchmaker 2

Dr. Don's. (415) 885-1973. 1200/2400 24 hrs. Discussion; ComputerTalk; BMW-CarTalk; SportsTalk; BoardRoom. Sysops: Dr. Don, Bimmer Pilot

Epson Users of SF Bay Area. (415) 467-2780.

Family Radio Forum - Oakland. (415) 562-5483. 300/1200/2400 8-N-1 24 hrs. Download pub. software & entire bible texts. Echo conferences on parenting, teens, singles, etc. Christian BBS for all. Sysop: Richard Yim

Family Radio Forum - Sacramento. (415) 562-5483. 300/1200/2400 8-N-1 24 hrs. Download pub. software & entire bible texts. Echo conferences on parenting, teens, singles, etc. Christian BBS for all. Sysop: Richard Yim

Family Radio Forum - San Jose.(415) 562-5483. 300/1200/2400 8-N-1 24 hrs. Download pub. software & entire bible texts. Echo conferences on parenting, teens, singles, etc. Christian BBS for all. Sysop: Richard Yim

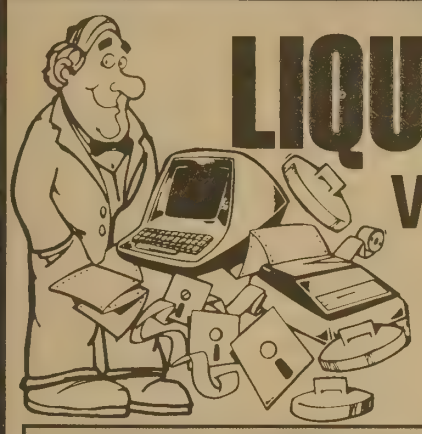
File Exchange. (415) 647-0505. 300/1200 8-N-1 24 hrs. MAC-based, mostly MAC but other types of computers welcome. Discuss problems & tips related to various programs.

Fremont Area Remote Terminal. (415) 791-2961. 300/1200/2400 24 hrs. MS-DOS & color computer downloads. Free!

Guideboard. (415) 864-3858. 300/1200/2400 24 hrs. Cabbie's Guide to SF. Where to go for restaurants, doctors, auto repair,

Computer Surplus Store

715 Sycamore Drive • Milpitas, CA 95035 • 408-434-0168 • FAX 408-434-0931



LIQUIDATION PRICES EVERYDAY

Visit the Largest Surplus Store in the Valley.

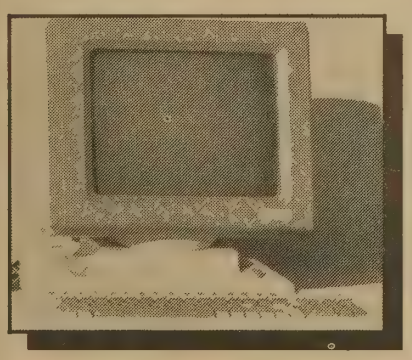
HUGE TERMINAL AND MONITOR SALE "REFURBS"

Quantity and Pricing Varies

TERMINALS

- Adds Reget 100 . . . . . $ Call
- DEC VT52 . . . . . $65
- Intercolor ANSI (Color) . . . $199
- Lear Siegler ADM 5 . . . . . $120
- Lear Siegler ADM 3,A $65
- TeleVideo 925 . . . . . $179
- Teco VA 2000 . . . . . $99
- Qume QVT108 . . . . . $189
- Qume QVT109 . . . . . $199
- Zentec 1021A $99

- Hard Disk Controllers
- Hard Disk Drives
- Floppy Disk Drives
- Mainframes
- Software
- Printers
- Power Supplies
- Terminals
- Monitors
- Hardware
- Magnetic Media
- Equipment
- Clone Boards
- Mechanical Gizmos
- Weird Stuff
- Thousands of Items to Choose From

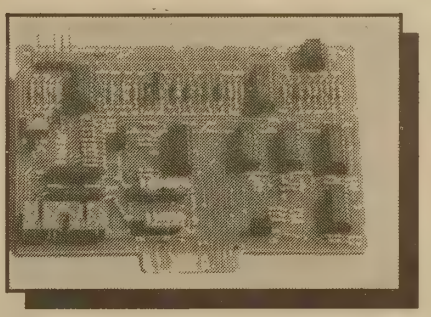


LIMITED QUANTITY

***New* Qume QVT311GX Terminals**

- Emulates DEC VT125, Tektronix 4010/4014

Special Price $450



APPLE DRIVE ANALOG BOARD

$9.95

By Franklin Computers for Apple II, IIe, II+ Floppy Disks.

PRINTER $189

ALPHACOM ALPHAPRO 101

- Apple II, II+, IIe, or IBM Interface Included
- 18 cps
- Diablo and QUME Print Wheel and Ribbon Comp.

Computer Surplus Store

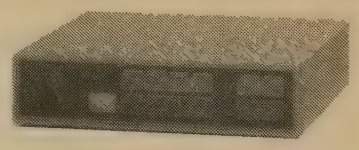
STORE HOURS
9:00–5:30
Monday–Saturday

715 Sycamore Drive
Milpitas, CA 95035
408-434-0168

The Perfect Connection Between Your PC's & Printers

NEW

Auto Scanning
Printer Sharing
w/512K Buffer

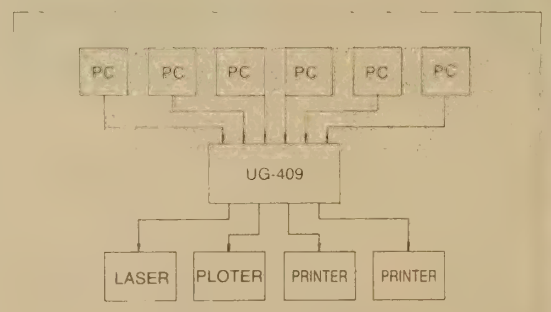


Model UG-409

Model UG-403

Connect Up To 6 Computers To 4 Separate Printers or Plotters

Connect Up To 4 Computers To 2 Separate Printers or Plotters



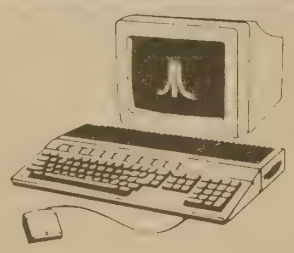
- Release your PC' s right away without waiting for printers.
- Connects 4 computers with 2 printers.
- I/O ports selection by autoscanning mode or manual mode operation.
- Allows two I/O channels to work simultanously. Standard with 64K, expandable to 256K of buffer.
- 7-segments LED display shows numbers of copies which can be easily set by pressing "+" and"-" buttons.
- The clear function display on front panel guides your operation with great ease.

Dealers & Corporate Inquiries Welcome

PRECISION TECH
1701 Fortune Dr., Ste. #N
San Jose, CA 95131
(408) 432-7359
Fax (408) 432-7369

LASER TODAY International
1924 Old Middlefield Rd.
Mt. View, CA 94043
(415) 961-3015
Fax (415) 961-7631

ATARI ST: The Choice of Achievers!



There is a Motorola 68000 based machine that runs Macintosh software *20% faster than a Macintosh.* It uses Digital Research's GEM, and will also run IBM software. It is one of the most popular personal computers in Europe. It is the number one personal computer in Germany. It is the Atari ST.
There are literally *thousands* of software titles to choose from. Everything from fully integrated business packages to sophisticated CAD/CAM programs, state-of-the-art music software, 4,096 color paint programs, 3D modeling and animation, desktop publishing, educational software for pre-schoolers to college graduates and *the most amazing games you've ever seen!*

ATARI®
Power Without the Price™

Available now at P.C. Options:
where the perfect choice in personal computers is perfectly clear!

P.C. Options is located at 411 Divisadero (between Oak and Fell) in San Francisco. We are open 12 to 6pm, Tuesday thru Saturday *or by appointment call 861-5327.* Macintosh is a registered trademark of Apple.

etc. Resident Astrologer: Swami Tommy. Sysop: Dick Schwartz

Henari. (415) 855-9548. 300/1200/2400 BBS serving the Bay Area Jewish Community, linked to Israel via FidoNet.

MacCircles. (415) 484-4412. 2400 8-N-1 24 hrs. Files; support; congenial conversation. Sysop: Patricia O'Connor

MailCom. (415) 855-9548. Silicon Valley's 1st Mac BBS on FidoNet. Part of EchoMac & BayMac Network. 90 megs, FidoNet/USENET connections.

Med-Link. (415) 845-8649. 300/1200/2400 8-N-1 24 hrs. Medical, health, computer topics.

Model 100, 102, & 200 Support. (415) 939-1246. 300/1200 8-N-1 24 hrs. Ongoing support for Tandy/Radio Shack Model 100, 102 & 200 owners.Int's support by mail, voice, & BBS.

Mouse-Trap. (415) 969-5486. 300/1200/2400. MS-DOS; files; messages; online games.

Nightengale. (415) 731-2422. 300/1200. A nursing BBS open to all. XT/PC clone MS-DOS.

Open Campus. (415) 895-0135. 300/1200/2400 24 hrs. GBBS/CMS sys. op. by San Leandro HS/Apple Eaters UG. 30 MB, 34 message bases; CMS intersys. E-mail. Library, downloads. Sysop: Robert Shayler

POPnet Berkeley. (415) 527-4510. Multi-line fun & games for all. Not free but cheap.

POPnet San Ramon. (415) 830-1191. Multi-line fun & games for all. Not free but cheap.

POPnet Walnut Creek. (415) 932-4263. Multi-line fun & games for all. Not free but cheap.

Program/Land. (415) 327-6197. 300/1200/2400 24 hrs. Pub. domain BBS - supports all telecommunication protocols. Alt. BBS - (415) 327-6198. Sysop: James Arnold

Recovery. (415) 621-5206. Help for alcoholism, drug addiction & compulsive behaviors. Meeting listings & AA files.

SF Robotics Society. (415) 752-7228. 300 24 hrs. Extensive robotics & hardware bibliography. Calendar of events.

SFPCjr. (415) 997-4874. 1200 8-N-1 24 hrs. Sysop: Larry Buoncristiani

SFPCUG. (415) 621-2609. 1200/2400 8-N-1 24 hrs. Emphasis on IBM & compatibles. Message board & info exchange. Dozens of downloadable files. Sysop: Richard Couture

SNLNDRO. (415) 895-1785. 300/1200 N. Cal HUB for CMS School Network. Op. by San Leandro HS for CUE & educators. 5MB. Sysop: Robert Shayler

Telenaut DIBBS. (415) 388-4007. 1200/2400 8-N-1. The Graphics Meeting Place where professionals from graphic arts, publishing & computer graphics meet. MS-DOS software.

The Apocryphal Code. (415) 347-2618. 300/1200 8-N-1 24 hrs. Sysop: Dave Brody

The DogLab. (415) 594-9806. 2400 24 hrs. Large file library; several echomail conferences.

The Flea Clinic. (415) 592-4060. 2400 24 hrs. Large file library; several echomail conferences.

The Pilgrim. (415) 731-2422. 300/1200. Spirituality, Catholic nursing. Spiritual development for homosexuals from a Catholic perspective. Oriented to UCSF.

The Switch. (415) 578-1919. 300 24 hrs. Free online entertainment, brought to you by Interactive Productions.

The Wasteland. (415) 479-4520. 300/1200. Debate, discuss & intellectualize. Private mail, computer SIG's. Friendly Sysop.

T-Room. (415) 756-6235. 300/1200/2400 8-N-1 24 hrs. Alternative lifestyles information & fun. Macintosh library. Voice validation required for access.

Video Vision - The Graphic Library. (415) 366-6409. 300/1200/2400/9600 8-N-1 24 hrs. A color BBS mainly for graphics, arts & games. User must read bulletin 1 or download "POLICY.TXT" & "FILELIST.ARC". Sysop: Roel Sarceno

Wetware Diversions. (415) 753-5265. 300/1200/2400 24 hrs. Multi-line, UNIX based system for conferencing & gaming. Running PicoSpan. Sysop: Christopher

YET ANOTHER BULLETIN BOARD!. (415) 689-8952. For IBM's & TRS-80's. Novices welcome! Sysops: Jim & Alex Stewart

CIRACS Network. (415) 463-2185. 300/1200 24 hrs. SIG to human service providers working in youth, drugs, alcohol & AIDS prevention & treatment. Sysop: Janet Morgen, MPH

Buy Direct From GCH and SAVE!!!!

Where Guaranteed Customer Happiness is our Promise

Turbo 88
$418

***4.77/10MHz XT compatible**
*256KB Memory
*Multi I/O card with 1 Serial Port, 1 Parallel Port, 1 Game Port
*Floppy Disk Controller
*Clock/Calendar
*360KB FUJITSU Floppy Drive
*AT Style Maxiswitch Keyboard
*At Style Case with 2 buttons, 3 lights

Options

20MB Hard Disk with Controller..... **$259**
640KB Upgrade..... **$99**

286 System
$824

***6/10MHz/0 WAIT AT comp.**
*80286 Motherboard
*Supports up to 4 MB memory on motherboard
*EEMS support on motherboard
*512KB Memory
*1.2MB TEAC Floppy Drive
*Hard/Floppy Controller
*RT Style (101) Maxiswitch keyboard
*Small footprint case

Options

12MHz/0 Wait Upgrade..... **$79**
640KB Upgrade..... **$36**

386 System
$1,799

***8/16MHz/0 WAIT AT comp.**
*80387/80287 Support
*1MB Memory (Expandable to 8 MB on motherboard)
*1.2MB TEAC Floppy Dri ve
*Hard/Floppy controller
*RT Style (101) Maxiswitch keyboard
*Full size case holds up to 5 half height drives

Options

20MHz System..... **$540**
2MB Upgrade..... **$299**

Modems

*Designed for use in IBM XT/AT and compatible computers
*Fully Hayes Command Compatible
*Full/Half Duplex Operation
*Compatible with Smartcomm II, Crosstalk IV, PC Talk, Procomm and other popular software

Internal 1200 BPS Half Card	**$67**
External 1200 BPS	**$74**
Internal 2400 BPS Half Card	**$129**
External 2400 BPS	**$139**

Options

MS – DOS Version 3.21	**$61**
MS – DOS Version 3.3	**$79**
9" Samsung Monochrome monitor with Hercules compatible display adapter	**$125**
Samsung 14" Color monitor with color graphics card and printer port	**$299**
Samsung 14" EGA Color monitor with EGA adapter	**$447**
Super EGA monitor with high resolution EGA card (Thomson Ultra monitor)	**$629**
XTRON 14" Monochrome Monitor with swivel base and anti – glare screen	**$135**

Dealer Inquiries Welcome

Motherboards

80386/16MHz W/1 MB Memory **$1,320**
**2 Way Memory Interleave Design (0WAIT State)
**32 Bit Processor
**80387/80287/WEITEK 1167 Support
**Expandable to 8MB Memory on board

80286/10MHz/ 0WAIT W/256K Memory **$320**
**Baby AT Size Motherboard
**Up to 4MB of Memory on Motherboard with LIM EMS Support

SAVE NOW!!

Prices Subject to Change Without Notice

All Products Include One Year Parts and Labor Warranty

GCH Systems, Inc.

845 W. Maude Avenue
Sunnyvale, CA 94086
(408) 733 – 2131

All systems IBM Compatible and FCC Class B approved

Comprehensive Owner's Manual Included with each System and Dos Version

QMD— Your Hardware Headquarters

TOSHIBA

321 SL (216 CPS) $499
321 SL (216 CPS) $669
351 SX/351-2 color $999/1069
T-1000/1200 ..... $779/2175
T-3120 MB $3099
Modem for laptops $295

HEWLETT PACKARD

Laser Series II $1625
1 MB expansion HP/compatible $349/320
2 MB expansion HP/compatible $690/620
HP Scanjet scanner $1275

COMPAQ

Deskpro Models
286 1/20/40 MB $1800/2250/2525
286 Model 40 (Factory) $2850
386/20 MHz 60/130/300 MB ..... $CALL
386 40 MB $4200
Portables
II Model 4 ..... $2250
II Model 2, 2 dr., 256K (80286) $1895
II Model 20 MB $3395
III Model 40 MB $3950
Amber/Green Monitor $185
VGA Monitor ..... $CALL
386 Memory Exp. board ..... $CALL
1 MB Memory Exp. kit $489
DOS 3.3 ..... $95

IBM

PS II Model 30-002/021 ..... $1225/1725
PS II Model 50-021 ..... $2689
PS II Model 60 44MB/70MB $3729/4125
PS II Model 80 44MB/70MB $5100/5900
Mono Display 8503 ..... $190
Color Display 8512 ..... $425
Color Display 8513 EGA $525
5¼" External Drive $295
IBM Mouse for System II $85
IBM Mouse for System II $295
ProPrinter II/XL24 ..... $390/725
ProPrinter X24 ..... $570
QuietWriter III $1225
IBM DOS 3.3 ..... $90

FLOPPY DRIVES

Quantity Priced
Fujitsu 360K/1.2 MB $65/82
Toshiba 360K/1.2MB $73/95
Toshiba 3.5" Internal $90

RENTALS

Rent computers/monitors/FAX/printers/ scanners/lasers by the week or month
(213) 312-5046

Quality Micro
Distributors
(213) 478-9811
11651 W. Pico
Los Angeles, CA 90064

Emerald Lake Fog #48. (415) 365-2650. 300/1200/2400. No fee; immediate access, CP/M & DOS.

Foothill College Science And Engineering BBS. (415) 941-5725. 300/1200/2400 24 hrs. Educational Program Information. Sysop: Long Tran

Kortek. (415) 327-4589. 110 to 9600 8-N-1 24 hrs. PD BBS for IBM & MS-DOS computers. Free. Looking for new members with new ideas to be a better board.

Marin-Sonoma PC Users Group (MSPCUG). (415) 927-1216. 300/1200/2400 24 hrs. IBM PC software & talk. Biz application oriented, official electronic voice of one of most influential user groups.

Railbird's Racing BBS-100. (415) 278-0767. 300 8-N-1-E 3-8 AM. Offering Dialy handicap of races we feel we can beat. Trouble & Lasix list too. News on sport& much more!

Video Seven Bulletin Board. (415) 656-0503. For owners of Video Seven VEGA graphics products. Updates and Support.

Recovery BBS. (415) 441-2539. 300/1200/2400. Message sections include Alcoholics Anonymous, NA, CA, Alanon/ACA, SA, SLAA & others.

tsunami bbs. (415) 726-2726. 300/1200/2400 24 hrs. Graphics compatibility theme. GIFs, MacPaints, etc. Free!

City of Richmond BBS. (415) 620-6500. 300/1200 8-N-1 6PM to 6AM daily, 24 hrs. wknds. Public Interest information on city activities.

Everex Technical Assistance BBS. (415) 683-2924. 300/1200/2400 8-N-1 24 hrs. For Everex products. Oriented toward helping programmers write software that takes advantage of Everex's special features.

SFPCUG BBS. (415) 621-2609. 1200/2400 8-N-1 24 hrs. Emphasis on IBM & compatibles. Initial log-on open, thereafter open only to group members. Phone(415) 221-9166 for SFPCUG info. Sysop: Richard Couture

Earth-Rite BBS. (415) 651-9496. 300/1200 8-N-1 24 hrs. Forum for New Age, Eastern and Pagan philosophies and religions. Non-traditional philosphical and religious discussions.

Dail Your Match #56A. (415) 964-3255. 300 8-N-1 24 hrs. E-Mail, 5 public boards, match functions. No Fees.

The Billboard. (415) 686-4338. 300/1200 2AM to 8PM. In Concord, CA. Mostly Mac, but open to others. Red Ryder host. Great support, files, message areas. Sysop: Bill Maginnis

Bytes Are Us. (415) 489-2236. 300/1200/2400 8-N-1 24 hrs. MS-DOS only, Free. Union City. Sysop: Burke Telford

516

Pal-East. (516) 665-1851. 300/1200/2400 8-N-1 24 hrs. Multi-line, E-mail,live chat on-line, Public Boards & library. Geared to alternate lifestyles Sysop: Scott

619

Dial-Your-Match. (619) 428-0318. Imperial Beach.

Dial-Your-Match. (619) 741-1377. Escondido.

Dial-Your-Match. (619) 746-6751. Escondido.

707

911 Emergency Services. (707) 664-1639. 1200/2400 & 9600 Fastco 24 hrs. Oriented to emergency service employees: fire, police, EMS, & interested public. Free.

North Bay Billboard. (707) 552-9758. 300/1200/2400. IBM, Mac, Atari ST, 20 Megs. In Vallejo.

Cyborg—64. (707) 526-6464. 300/1200/2400. Online user group suporting C64, C128, Amiga. 65 MB online!

714

Adventurer's Castle. (714) 871-4119. 300/1200 24 hrs. Real time gaming. Sysop: William E. Hart

Amiga Friends. (714) 870-4754. 300/1200/2400 24 hrs. Run by one of S. California's largest Amiga clubs. Special interest sections, downloads, club activity information. Sysop: Scott Thayer

Bits & Pieces of Anaheim. (714) 630-8897. Amiga and IBM.

Bits & Pieces Time BPT-Main. (714) 630-8897. 300/1200/2400 24 hrs. No parity, full duplex. BBS determines baud rate by ret. key. Large software library for Commodore 64/128, Amiga & IBM. Sysop: Mike Dalton

Dial-Your-Match. (714) 825-0901. Colton.

Dial-Your-Match. (714) 773-5326. Fullerton.

Dial-Your-Match. (714) 682-8763. Riverside.

Dial-Your-Match. (714) 739-8822. Buena Park.

Dial-Your-Match. (714) 751-4860. Santa Ana.

Dial-Your-Match. (714) 857-2470. Irvine.

French Connection. (714) 858-8111. 300/1200/2400/9600. 16 multi-line BBS in Orange County. Dating service; 500 megs of software for users. Sysop: Stephen M. Cohen

Fretwork. (714) 974-7428. 300/1200 24 hrs. Punter protocol for file transfers. Commodore specific. C-TUG members's night - every Fri. Sysop: Jeff Griffith

Happy Trails. (714) 547-0719. 1200/2400 8-N-1 24 hrs. MS-DOS; Multi-user; E-mail; Downloads; SIG's; On line games Sysop: Don Inglehart

Imperial Palace of DB. (714) 860-0889. 1200 24 hrs. Commodore 64, 128.

Nebula 6. (714) 595-6577. 300/1200/2400 8-N-1 24 hrs. Write for a free newsletter. P.O. Box 1071, Walnut, CA 91788. PC-Pursuitable. Sysop: Michael Quirino

Network XXIII. (714) 548-4836. 1200/2400/9600 8-N-1 24 hrs. On-Line registration; 1500+ files; conferences; online games. Sysop: Jim Brandon

PC Exchange. (714) 956-5468. 2400/4200 24 hrs.

PC Exchange. (714) 956-5468. 1200/2400/9600.

PC-LAIR. (714) 839-9580. 300/1200/2400 8-N-1 24 hrs. PC-DOS; MS-DOS. Large PD software library. Sysop: Eric Drochner

Software Exchange. (714) 552-3515. 300/1200/2400 8-N-1 24 hrs. For IBM & compatibles. Over 3000 programs in 152 megs. Fastest-growing BBS in Southern California! Sysop: John Coon

The Byte Zone. (714) 491-7635. 300/1200 24 hrs. Serves all Tandy computers & many others, incl. MS-DOS. Features adventure help files, elect. mail,message bases, etc. Sysop: Franco Collino

The End of the Line. (714) 645-6581. 300/1200/2400 8-N-1 24 hrs. Running Wildcat BBS software. Pub. dom.& shareware for IBM & compatibles. Private/pub. message bases.Scorecast data files. Sysop: Bob Kelly

TripWire TECHnologies (PCB). (714) 964-1146. 1200/2400 24 hrs. Multilingual operations with 7 national echomail areas. (Beta testing PCBmail) Sysop: William Kidd

Wellspring RBBS. (714) 856-7996. 300/2400 M-F 5 PM-8 AM. S-S 24 hrs. Medical/AIDS/Software.

Calsonic. (714) 830-5958. Password=CII. Use real names. Sysop: Kerry Williams

Families—Naturally BBS by The Parent SIG. (714) 735-4279. 300/1200/2400 8-N-1 24 hrs. Promotes healthy sexual development of children. Supports victims of childhood sexual abuse.

717

Dead Board. (717) 677-9573. Sysop: Captain Trips

Success BBS. (805) 238-7359. 300/1200 24 hrs. Sysop: Larry Sarver

The Digital Dungeon. (805) 683-2436. 300/1200/2400 8-N-1 24 hrs. Open System designed to be an open forum. Primarily a conversation system. Sysops: Jerry Ash, Doug Sander

818

Fox Hole. (818) 332-3073. 300/1200 24 hrs. Home of Pervert's Palace. On-line games etc. Write for info: P.O. Box 1071, Walnut, CA 91788. Sysop: Dr. Foxe, Ultamacy

Dial-Your-Match. (818) 888-6688. Canoga Park.

Dial-Your-Match. (818) 845-5325. Burbank.

Dial-Your-Match. (818) 247-6343. Glendale.

Dial-Your-Match. (818) 954-0790. Burbank.

Dial-Your-Match. (818) 506-6300. N. Hollywood.

DELOS. (818) 242-2365. 300/1200 24 hrs. Lo-cost access or free ltd. use. Serving the Gay Community. 10 lines for chatting! Library & many public boards.

DELOS. (818) 242-1410. 2400 24 hrs. Lo-cost access or free ltd. use. Serving the Gay Community. 10 lines for chatting! Library & many public boards.

Dial-Your-Match #1. (818) 842-6900. 300/1200 24 hrs. The original dating BBS on-line since 1981. Fill out a personalized questionnaire & join the fun!

Fantasy Plaza. (818) 840-8066. Burbank.

Hard Ball PC Board. (818) 713-0420. 1200/2400 8-N-1 24 hrs. Programming conference specializing in Pascal. Huge P/D & Shareware Filebase for PC & compatibles.

LEGACY - The Law Network. (818) 990-7600. 1200 8-N-1 24 hrs. Info on Computer Law, Entertainment Law, Comms. Law. Pro bono conference for free legal advice to non-lawyers. Sysop: Richard H. Kohn, Esq.

The Diskette Company

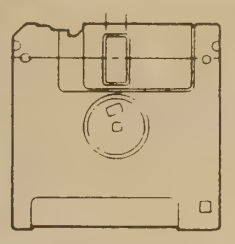
100% ERROR FREE · LIFETIME WARRANTY · U.S. MAJOR MANUFACTURER

5¼" DS/DD

25¢ EACH DISK
QTY. 200

- **100% ERROR FREE**
- **LIFETIME WARRANTY**

4¢ TYVEX SLEEVES
2¢ PAPER SLEEVES
1¢ COLOR CODED LABELS



3½" DS/DD

- WITH LIFETIME WARRANTY
- 100% ERROR FREE

$1.10 EACH
IN PACKS OF 25
Reg. $1.29

5¼" DS/DD

IN WHITE BOX

33¢ EACH

DISKETTES ARE IN BOXES OF 10
Included: Anti Static Sleeves, Labels, Tabs with Hub Rings.
(Minimum 100 disks or 10 Boxes)

Lots of 350 .....30¢ each

5¼" DS/DD OUR STANDARD PRODUCT

$35 PER 100
Reg. $48
IN PACKS OF 10, BOX OF 100

TYVEC SLEEVES,
COLOR CODED LABELS,
HUB RING AND TABS
INCLUDED

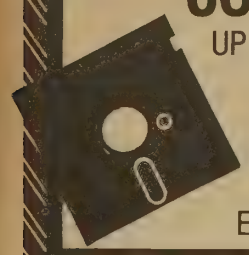
5¼" DS/HD

90¢ EACH
(Minimum 30)

1.2. MB COLORED
Now in 12 Different Colors. Comes w/ Tyvec Sleeves, Labels & Tabs/in paks of 10. High Density for IBM AT and Compatibles.

COLOR 5¼" DS/DD

UP TO 16 DIFFERENT COLORS

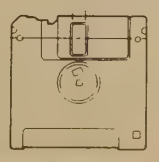


45¢ EACH **In paks of 10**

Inc.: Tyvec Sleeves, Color Coded Labels and Tabs. Rainbow Pack Available. Colors: L. Blue, M. Blue, D. Blue, Gray, Red, Pink, Brown, Beige, Burgundy, Yellow, White, Orange, Green, Lavender, Silver* & Gold*

3½" DS/HD

2 MB Disks
For the IBM PS/2



CALL FOR BEST PRICE

Dysan
5¼" DS/HD ..... $13.95 box of 10

maxell
5¼" DS/DD $8.95
5¼" DS/HD ..... 18.60 box of 10

Verbatim
A Kodak Company
5¼" DS/DD $7.95
Teflon Protected 5¼" DS/DD 9.85

BONUS
5¼" DS/HD 1.2 MB ..... $11.60 box of 11
5¼" DS/DD ..... 4.90 box of 11

Wabash DATATECH
3½" DS/DD ..... $11.95 box of 10
5¼" DS/HD 1.2 MB ..... 9.95 box of 10

SONY
3½" DS/DD $16.95
3½" DS/HD 44

PLATINUM
5¼" DS/DD $5.99

3½" Floppy Disk Drive

720K Capacity $99
1.44 Mb Capacity $125

ACCESSORIES

3½" & 5¼" Diskette Storage

DD50L Holds 50+ 5¼" Diskettes $6.95
DD100L Holds 100 5¼" Disks w/ lock $8.95
DD120L Holds 120 5¼" Disks w/ lock $11.95
SS40 Holds 40 3½" Diskettes $6.95
DD80L Holds 80 3½" Disks w/ lock $10.95
DS120L Holds 120 3½" Disks w/ lock $18.50
AC Surge Protector (6 outlets) $9
AC Power Pad $22
Keyboard Drawer (for PC/AT) $35
5¼" & 3½" Head cleaning kits ..... $3.90 ea.

AMERICAL GROUP

(818) 765-3040

Fax: (818) 765-3887

SAME DAY SHIPPING DEALER & QUANTITY PRICES AVAILABLE

C.O.D., VISA, MC
Send your order with check to:
Americal Group
14200 Ventura Blvd., Ste. 201
Sherman Oaks, CA 91423
ADD $4.00 Shipping for first 100 Disks and $1.00 for ea. add'l. 100
CALIF. RESIDENTS ADD 6½% SALES TAX.
We accept government & educational purchase orders.

Now Accepting
VISA
master charge

& MICROTIMES
PRESENT
THE FOLLOWING

COMPUTER SHOWS & SALES

► Sunday 4/17
Concord Computer Show & Sale
Concord Elks
3994 Willow Pass Road
I-680 to Willow Pass Road Exit. Turn Left.

New Show!

► Saturday 4/23
Vallejo Computer Show & Sale
Solano County Fairgrounds
Exposition Hall
Across from Marine World

► Saturday 4/30
Marin Computer Show & Sale
Marin Civic Center Exhibit Hall
N. San Pedro Road Exit off 101,
Left on Civic Center Drive

► Saturday & Sunday 5/14 & 15
Amiga - Commodore Computer Users Show & Sale
Santa Clara Convention Center
5001 Great America Parkway
Across from Great America

Special 2-Day Show!

► Saturday & Sunday 5/21 & 22
Oakland Computer Show & Sale
Special Atari Section!
Oakland Coliseum Exhibition Hall
Take Hwy 880 to Hegenberger Exit

TREMENDOUS SAVINGS

NEW PRODUCTS
CLOSE OUTS
OVER STOCKED
HARDWARE
SOFTWARE
BARGAIN PRICES
MAJOR BRAND NAMES
COMPATIBLES AND CLONES
DISCOUNTERS
PERIPHERALS
WHOLESALERS
ALL UNDER ONE ROOF!
SAVE!

► ALL SHOWS 10-5 PM
Admission $5.00 Kids 12 & under FREE

EAST-WEST COMPUTER SHOWS
(formerly Golden Gate Shows)
CALL FOR INFO: (415) 388-8893

Lynzie's Motherboard. (818) 508-6482. 300/1200/2400 8-N-1 24 hrs. Multi-interest. Social events for users. If you're looking for a discriminating BBS, this is the place to be. Sysop: Lynzie Flynn

Mysteria. (818) 353-8891. 300/1200/2400. Occult & general text files, CP/M, turbo Pascal. Sysop: Phil Hansford

Oracle. (818) 509-9681. 300/1200/2400 8-N-1 24 hrs. 9 phone lines. System password MICROTIMES for higher access. Free demo version of Oracomm BBS software. Sysop: Gary Young

Party Line. (818) 842-3322. 300/1200 24 hrs.

11 phones. The most exciting multi-user chat system in Cal.! Also, integrated matching system, up-download, chat link sys.

The Board with No Name. (818) 785-3340. 300/1200. A gay-oriented BBS. No hourly fees; no time limit w/ paid access. 16 lines.

The Board with No Name. (818) 785-6428. 2400. A gay-oriented BBS. No hourly fees; no time limit w/ paid access. 9 lines.

The Ledge PC Board. (818) 352-3620. 300/1200/2400/9600. All systems welcome, full support for IBM PC/AT compatibles.

The Software Bank. (818) 993-5516. 300 to 9600. Atari ST only. 65 megs. Node #95 of FNET. Exchg. messages & files w/users on other FNET BBS nationwide thru our network. Sysop: The Software Bank

Dial-Your-Match. (818) 785-3498. Van Nuys.

Party & Chat Line. (818) 842-3322. Burbank.

Lynzie's Motherboard. (818) 508-6482. 300/1200/2400/9600 8-N-1 24 hrs. Matching, group and private chat system, local social events. S.F.V. Sysop: Lynzie Flynn

Lynzie's Motherboard. (818) 989-3875. 300/1200/2400/9600 8-N-1 24 hrs. Matching, group and private chat system, local social events.S.F.V. Sysop: Lynzie Flynn

916

Dial-Your-Match. (916) 275-1265. Redding.

Dial-Your-Match. (916) 736-0739. Sacramento.

24th Street Exchange. (916) 451-7179. 300/1200/2400 8-N-1 24 hrs. Opus-based system. Free access. Lge. selection pub. domain files for IBM & compatibles. Special interest areas. Sysop: Don Kuhwarth/Laura Stua

ASSOCIATIONS

SF Robotics Society. Meetings: 2nd Mon. Homestead Savings, Community Hall, 5757 Geary (at 22nd), SF. Guest speaker, developers' roundtable.

North Bay Users Group (NBUG). Meetings: 2nd Thurs. 7:30-10 PM 201 Maine St., Vallejo, CA. Family Computer Club dedicated to all forms of computing.

AI Expert Systems for Business (ESB). Meetings: 1st & 2nd Sun. San Francisco. Business PC expert system solutions. Determine market opportunities, group research projects. (415) 564-6699.

PC Publishers of San Francisco. Desktop Publishing. Ventura, PC Pagemaker & others. Call (415) 661-9270.

Silicon Valley Computer Society. Contact Kent Stafford (408) 286-2969. Or write to 2464 El Camino Real #190, Santa Clara, CA 95051.

Association For Women In Computing. For information call (415) 655-3110 or write to 41 Sutter Street, Suite 1044, San Francisco, CA 94104.

MIDICRUZ Computer and Music Users. Meetings: 1st Thurs. 7:30 PM 200 Seventh Ave. Suite 225, Santa Cruz, CA 95062. Contact Robert at (408) 476-8464.

Bay Area Desktop Publishing Users Group. Meetings: each Tues. 7 PM Spats Restaurant, 1974 Shattuck Ave., Berkeley, CA.

California Genealogical Society Computer Interest Group. Meetings: 2nd Sat.- odd months Genealogical Society Library, San Francisco.

Computer Associates UG. Meetings: 3rd Wed. Gateway Holiday Inn, San Francisco, CA.

Computers & Law Assoc. Meetings: McGeorge School of Law, 3200 Fifth Ave., Sacramento, CA 95817.

Entrepreneurial Support Group. CEO. Meetings: SASE, P.O. Box 2781, San Rafael, CA.

Professional Association Of Secretarial Services (PASS). Meetings: 2nd Sat. Oakland. Group for self-employed word processors. Contact Nina Feldman (415) 655-4296.

The Society For Technical Communication. Meetings: 1st Wed. 7:00 PM Room #3, SMUD Facilities, corner of Elkhorn and Don Julio, Sacramento. Devoted to the advancement of the theory and practice of technical communication.

Software Entrepreneur's Forum (SEF). Meetings: 3rd Thurs. 1875 Embarcadero Rd., Palo Alto. Helps individual software developers and startup software companies. Call for complimentary newsletter. (415) 854-7219.

USER GROUPS

AMIGA

Amiga Addicts Anonymous (AAA). Newsletter, public domain library, demonstrations.

ASCITEC: The Amiga Science & Technology Users Group. Meetings: 2nd Thurs. 5-7 PM Lockheed, B/157, Rm. 4-C, Sunnyvale, CA. Scientific/Video Applications. Classes available.

AUGment - Amiga Users Group of Silicon Valley. Meetings: 2nd Fri. Write to P.O. Box 1863, Fremont CA 94538 for more info.

Bay Area Amiga Developers Group (BADGE). Meetings: 3rd Thurs. 8 PM Turing Auditorium, Stanford University, Stanford, CA. For all Amiga programmers. No membership fee.

Northern California Amiga Club. Meetings: 2nd. Sat. 1:30 PM Business Incubator, 4311 Airport Rd., Redding, CA. $15/yr., monthly newsletter, access to PD disk library, SIG's & support.

SMAUG — Silinas-Monterey Amiga Users Group. Meetings: 3rd Tues. 7 PM Seaside Library, 550 Harcourt Ave., Seaside, CA.

ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meetings: 3rd Tues. 7:30 PM Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

Vallejo AMiga People (VAMP). Meetings: 2nd Tues. 6:30 PM Software 1st, Vallejo Corners Shopping Center. Contact Bill Braun at (707) 554-0263.

Amiga East Bay Info Exchange (AEBIE). Meetings: 2nd Tues. 7 to 9 PM 11185 San Pablo Ave., in El Cerrito. Write to P.O. Box 485, Pinole, CA 94564.

CWEST Bay Area Commodore User Group. Meetings: 3rd Thurs. Embarcadero YMCA, between Mission and Howard. Supports C-64/128,

PRICE, QUALITY, SERVICE

EXP 80386 System

- 20 MHz 0 Wait Clock Speed
- 1 MB memory installed expandable to 2MB, 80287/80387 Socket
- 230W power supply
- AT style case
- 1.2MB floppy disk
- Hard disk & floppy controller
- Keytronics 101 keyboard
- 2 serial/2 parallel
- Built in EGA board
- Printer port
- 32 bit slot
- Made in USA

ONLY **$2,150**

YOUR LAST COMPUTER SYSTEM

*Available with Tower case

EGA option . . . $350
20MB hard disk $225
40MB hard disk $350
60MB hard disk $395

EXP 80286 System

- 512K memory
- 80286 10 cpu Phoenix Bios
- 6/10 MHz 0 wait
- 1.2 MB floppy drive
- Printer port
- Hard/floppy disk controller
- Real time clock
- Hercules compatible mono card
- 12″ tilt & swivel monitor
- AT style keyboard
- Hardware reset switch
- Turbo mode switch & LED
- 230W power supply.
- Keyboard
- No hidden cost - ready to run!
- Optional Tower case
- OS/2 tested

ONLY **$875**

12 MHz 0 WAIT System ONLY $980

EGA option $350
20MB Hard disk $225
40MB Hard disk $350
60MB Hard disk $395

EXP 8088 System

- 512K memory - expandable to 640KB
- 4.77/10 MHz clock speed.
- 360KB floppy drive.
- Serial port.
- Printer port.
- Game port.
- Real time clock.
- Hercules compatible mono card.
- 12″ Tilt & Swivel amber monitor.
- AT style keyboard.
- 150W power supply.
- AT style case.
- Keylock switch.
- Power on LED.
- Turbo mode LED.
- Hard disk drive LED.
- Hardware reset switch.
- No hidden cost, Ready to run.

ONLY **$560**

640KB memory $600
20MB hard disk. $275
Second floppy $75

EXP LCD System

- 20 Pounds
- High resolution LCD display
- 640 x 200 resolution
- 110/220 volt auto switch
- Very small size
- Using standard add on boards
- 5 expansion slots
- Supertwisted display
- EL backlight
- Two 5.25″ or 3.5″ hard disk & floppy disk

8088 System . . $1,050
80286 System . . $1,375
80386 System . . $2,650

SYSTEM REPAIR/DIAGNOSTIC/UPGRADE

We do system repairs, diagnostics & upgrades on your PC/XT/AT/80386

We will check your system and tell you the problem, & recommendation or quotation.

System check price:

PC/XT $20
AT $30
80386 . . . . . $40
Portable System . . $50

NON-Volatile EMS/RAMDISK Multifunction Board

- 2MB EMS with optional piggy back
- Serial port, parallel port
- Realtime Clock
- Upgrade your system memory up to 640K
- Keeps data after power off
- Made in USA

$79

Star NX 1000 Multi Font Printer

144 CPS high draft speed
36 CPS NLQ printing
8 built-in NLQ fonts
Proportional printing available
Push button control panel
Paper parking mechanism
Tractor and friction feed
IBM Proprinter/Epson emulation

$185 Free Cable

GENOA Super EGA Plus Thompson Ultra Scan Monitor

- Highest EGA resolution 800 x 600
- MDA, CGA, EGA, Hercules
- 132 column x 25/29/32/43/60 line
- VGA mode compatible
- Too many features to list here

GENOA Super EGA. $185
FREE Gem Graph S/W
Thompson Ultra Scan $465

FASTCARD IV

- 1MB EMS (w/0K) for XT
- Serial/parallel port
- Disk cache/spool
- Real time clock

$59

Everex 10MB EMS

The biggest EMS memory card for your 80286, 80386 system.

$149

ATI EGA Wonder

Any Software Any Monitor Any time

$185

Ultra EGA Plus

640x350 resolution
Autoswitch (using Paradise chip set)
EGA/CGA/Hercules compatible

$105

JC 14″ EGA Monitor

640x350 resolution
Amber/green text mode switch
Best quality. Come and see.

$339

JC 14″ TTL Monitor

720x350 resolution
Amber or green available
Built-in tilt & swivel. 110/220 volt.

$95

Everex EMS Multifunction

1 MB EMS memory (ØK)
2 serial (2nd serial optional)
1 parallel, game, clock

$75

MONITORS

Samsung 12″ TTL $75
JC 14″ TTL. 95
Gold Star EGA. 345
Thompson Ultra Scan 465
Mitsubishi Diamond Scan 489

ADD ON BOARDS

Multi I/O (FDC,S,P,G,C) $55
Mono graphic/printer. 45
Color graphic. 45
XT 1.2MB/720K/1.4MB FDC 55
EVEREX 1200B Modem 85
EVEREX 2400B Modem 195
XT hard controller 55
XT RLL controller 65
AT controller MFM/RLL . . . 119/145
Everex 3MB EMS (Lim 4.0). 85
ATI EGA wonder 189
Mono 132 Column/Printer 59
Everex EGA (800 x 600) 150
Everex EMS Multifunction 75

PRINTERS

Ricoh daisywheel (22 cps, 132 col.) $199
Epson LQ 500. 365
Citizen 180D 185
Citizen 120D 150
Panasonic 1091i 209
NEC P2200 24 pin. 365
Epson LX-800. 209
Star NX-1000 185

DISK DRIVES

FUJITSU 360K/1.2MB. $69/89
3.5″ 720KB/1.4MB 89/125
ST225/238 hard disk 225/239
ST251/ST251-1 hard disk . 385/445
ST4096 hard disk 799
Miniscribe 3650 (40MB, 60ms) . 329
ST125/138 (3.5″, 28ms). . 275/375

CPU Boards

8088 CPU Bd (4.77/8MHz). $75
8088 CPU Bd (4.77/10MHz) 79
80286 CPU Bd (6/10MHz). 259
80286 CPU Bd (6/12MHz). 325

MISCELLANEOUS

Handy Scanner $215
Keytronics 101 K.B 55
AT Jr. case/150W PS 38/43
AT case/230W PS 58/89
Logi bus/serial mouse. 75
DSDD diskette 1 BOX 4
DSHD diskette 1 BOX 9
MSDOS 3.3. 89
Curtis universal printer stand. . . . 19
AC Multi outlet 10
Printer cable 5

Prices subject to change without notice.
UPS Shipping daily.

JEMINI ELECTRONICS

Formerly Xeltek

3400 De La Cruz Blvd. Suite #T
Santa Clara, CA 95054

M-F: 9-7PM Sat 10-4PM
Tel. (408) 727-9986

High Quality

EVEREX

Best Service

SYSTEM 3000 80386 AT
$CALL For Best Price

- ☐ Intel 80386-16 CPU
- ☐ 1MB Of Fast RAM
- ☐ 64K Static RAM Cache
- ☐ 1.2MB TEAC Drive
- ☐ 16MHz 0/1 Wait State
- ☐ Compatible with IBM AT
- ☐ Maxi Switch Keyboard

SYSTEM 1800 80286 AT
$850
10 MHz:$950 12 MHz:$1299

- ☐ 100% Compatible with IBM AT
- ☐ 6/8 MHz Selectable Intel 80286
- ☐ 512K on 1 MB M.B.
- ☐ 195 Watt Power Supply 110/220
- ☐ Everex HD/FD Controller
- ☐ 1.2 MB Teac High Density Drive
- ☐ Runs Autocad, Xenix, Novell, all Prop. Software
- ☐ 200 Pages of documentation (written in USA)
- ☐ AT Keyboard (Maxi-Switch) Clock, Calendar

SCHWAB TURBO AT 10 MHz/0 Wait
Complete Monochrome System $899

SCHWAB TURBO XT 10MHz/0 Wait $429
256K, 360K, Maxi Switch K.B. Complete Monographics System

Seagate 20 MB $239	Everex 20 Meg SubSystem. 269	Mono Monitor + HGC 139
Seagate 40 MB (ST 251). 445	Everex 30 Meg SubSystem. 309	Everex Modem 1200/2400 . . . . . 85/179
Miniscribe 72 MB 799	EGA Monitor + EGA Card 510	Everex RAM 3000. . . . . Call

3282 El Camino Real
Santa Clara, CA 95051
(408) 241-1210
Daily UPS Shipping

SCHWAB COMPUTER CENTER
"The Everex Store" An Authorized Dealer

We Accept

Hours: 10-7 Mon-Fri
11-4 SAT

SERVING YOUR COMPUTER GRAPHIC NEEDS

CAD • PRESENTATION GRAPHICS • DESKTOP PUBLISHING • VIDEO & ANIMATION

New products for your presentation needs:
General Parametrics VS Professional with Natural Image Display
KLOSS Color Computer Video Projectors
JVC Professional Video Equipment

Hours
Mon.-Fri.10am-6pm
Sat. by Appt.

MasterCard OR VISA

COMPUTER GRAPHICS CENTER, INC.
444 High Street, Palo Alto
(415) 325-3111

Macintosh Training

Your local Heath Zenith store offers an extensive selection of Mac courses, each one designed to teach you both concepts and applications, as well as helpful tips to gain the most from your new computer. Each class is comprehensive, thorough, and taught by an experienced instructor who has both the business experience and the Macintosh know-how to cover the material effectively, so that you will learn the material quickly and get your questions answered as well. The student workbook can be used for notetaking, as well as a reference guide after class.

INTRO TO MAC	DESKTOP PUBLISHING	MICROSOFT WORD
April 21 & 22 • 8:30 A.M.	April 21 • 1:30 P.M.	April 28 & 29 • 8:30 A.M.

CALL FOR OUR MAY SCHEDULE! • BUSINESS TO BUSINESS TRAINING

Heath Zenith Computers & Electronics

CAMPBELL: 2350 S. Bascom Ave. (408) 377-8920
EL CERRITO: 6000 Potrero Ave. (415) 236-8870
REDWOOD CITY: 2001 Middlefield (415) 365-8155

DEALERS • OEM • END USERS

We Have The Best Prices & Products Available

XT/AT/386 Systems • IBM PS2 • Compaq • AST • Printers
• Monitors • Add On Boards • Drives • FAX Machines

CALL US FOR THE BEST PRICES & INFORMATION

SURAH

415-651-5101
800-543-1001 outside Calif.
45461 Fremont Blvd., Fremont, CA

Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

APL

APLBUG (APL Bay Area Users Group). Meetings: 2nd Mon. I.P. Sharp Offices, 425 Sherman Ave., Ste. 200, 3 blks SW of Caltrain depot.

APPLE

Apple Pickers of the Redwood Empire. Meetings: 2nd Sat. 10 AM Santa Rosa JC, Shuhaw Hall, Rm. 1735. Call for sample newsletter. (707) 763-8322.

A.P.P.L.E. Co-op. Meetings: National User Group. Call-A.P.P.L.E. Magazine. Write: 290 S.W. 43rd Street, Renton, WA 98055. Or call (206) 251-5222 for more info.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri. 7 PM Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

San Leandro Apple Eaters Users Group, Apple II Users Group. Meetings: 1st Thurs. San Leandro High School, Rm. 213, San Leandro, CA New owners & experienced users welcome. AppleWorks (TAWUG), software & telecommunications SIG's meet monthly. Newsletter.

B.E.A.R. Apple II National Users Group. Meetings: send S.A.S.E. to B.E.A.R., 4719 Meridean Ave. #401,San Jose 95118. Printshop & Appleworks files, monthly newsletter.

Tri-City Apple II UG. Meetings: 3rd Thurs. 7 PM Casa Colina, 50 N. Hill Ave., Pasadena, CA

ATARI

ABACUS - Atari Bay Area Computer Users Society. Meetings: 1st Sat. 19th Avenue Diner, 19th & Lincoln Aves., San Francisco, CA. Free meetings open to Atari XL/XE & ST users. With membership $15/yr, comes monthly newsletter, discounts on hardware, etc.

Bay Area Atari Users Group (BAAUG). Meetings: 1st Mon. 7:00 PM Bracher School, corner of Bowers and Chromite, Santa Clara. ST users meet at Bracher on 2nd Tuesdays. 8-bit users meet at H-P, Wolf and Pruneridge, Cupertino. BBS: (408) 247-1257.

AT&T

Bay Area AT&T PC Users Group. Meetings: 1st Wed. 6:30 PM Alternates between Oak. & SF, Call: Mark Dill (408) 995-3966

Bay Area AT&T PC Users Group - South Bay. Meetings: 2nd Wed. 6:30 PM AT&T Bldg., 1090 E. Duane, Sunnyvale, CA. Call: Mark Dill (408) 995-3966

AUTOCAD

SF/Marin Autocad Users Group. Meetings: 1st Tues. $20/yr membership, newsletter or call Virginia: (415) 777-4025

Sonoma County Auto CAD Users Group. Call (415) 777-9144 for info.

COMMODORE

Campbell Chapter of 64/More Commodore UG. Meetings: 4th Tues. BBS (408) 946-6154.

Commodore Connection Users Group. BBS (415) 458-1005.

Cupertino Chapter of 64/More Commodore UG. Meetings: 3rd. Sat.BBS (408) 946-6154.

Fairfield Commodore User Group. Meetings: 1st & 3rd Mon. Solano County Education Bldg. Write to P.O. Box 2778, Fairfield, CA 94533-9998 for info.

F.U.N.H.U.G. - Fremont, Union City, Newark, Hayward User Group. Meetings: 3rd Thurs. 7:30 PM Newark Public Library, 6300 Civic Terrace Ave., Newark, CA. A user-organized, user-operated user group not affiliated with any computer or software manufacturer or distributer.

North Valley Chapter of 64/More Commodore UG. Meetings: 2nd. Sat. BBS (408) 946-6154.

PLUG (The Plus/4 Users Group). No regular meetings. Over 800 members internationally. Write to P.O. Box 1001, Monterey, CA 93942 for info.

San Jose Chapter of 64/More Commodore UG. Meetings: 1st. Sun. BBS (408) 946-6154.

Silicon Valley Commodore Club. Meetings: 4th Wed. 7 PM Hewlett-Packard, 5301 Stevens Creek at Lawrence & 280. C-64, C-128, & Amiga.

Commodore 64 Software Users Group For New Commodore Owners. One-on-one help for new owners. Meeting place & time TBA by members. Call (714) 531-2977 for info.

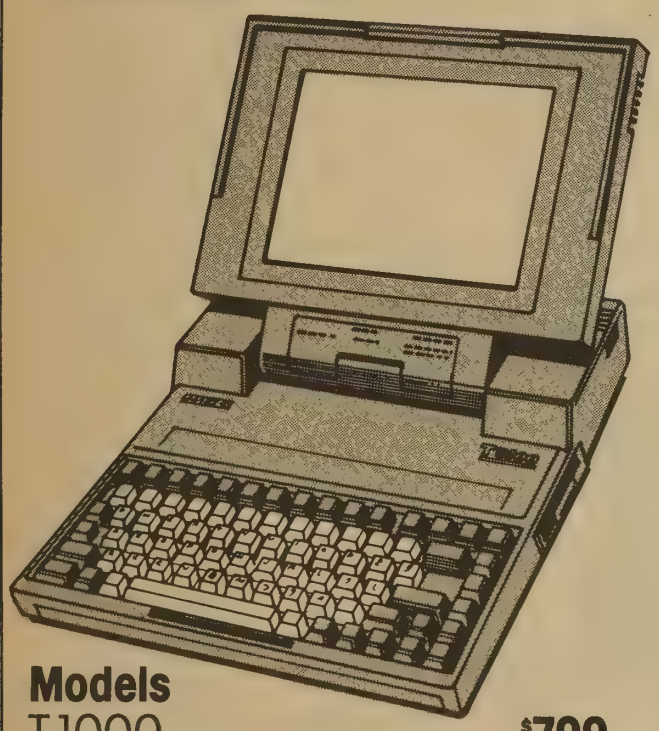
ACCESS (The Amiga And Commodore Computer Enthusiasts Society). Meetings: 3rd Tues. 7:30 PM Community Room of Homestead Savings & Loan, 999 E. Stanley Blvd., Livermore, CA. Contact Ron Kremkow at (415) 449-1784.

CWEST Bay Area Commodore User Group. Meetings: 3rd Thurs.

A System That Fits Your Budget or Lease It For Your Business

SYSTEM CONFIGURATIONS	386 SYSTEM $1899	286 SYSTEM $750	TURBO XT SYSTEM $379
Speed	16/8Mhz, 0 Wait State	10/6Mhz, 0 Wait State	8/4.77Mhz
Memory on Board	512K Expandable to 8MB	512K Expandable to 1MB	256K Expandable to 640K
Disk Controller	Hard & Floppy Controller	1.2MB/720K/360K Controller	360K Floppy Controller
Drive	1.2MB Floppy Drive	1.2MB Floppy Drive	360K Floppy Drive
Power Supply	200 Watt	200 Watt	150 Watt
Co-processor Socket	80387/80287	80287	8087
Keyboard	Enhanced Style	AT Style	AT Style
Expansion Slots	8	8	8
Real Time Clock	Built-in	Built-in	Option
LED Lights	Power, Hard Disk, Turbo	Power, Hard Disk, Turbo	Option
Drive Opening	3	3	4
Video Card	Option	Color or Monographic	Color or Monographic
Warranty	1 Year	1 Year	1 Year
	20Mhz System With 2 MB RAM $2250	**12Mhz System $950**	**12Mhz System $439**

TOSHIBA LAPTOPS



Models

T-1000 . . . . . $799
T-1200 2495
T-3100/20 3295
T-3200 3995

SYSTEM BOARDS

386 (20 Mhz) 2 MB RAM $1750
286 (12/6Mhz) 350
286 (10/6Mhz) 285
Turbo XT (8/4.77Mhz) 80
Turbo XT (12/4.77Mhz) 95

INTERFACE CARDS

XT Multi I/O $57
XT Floppy Controller 21
1.2MB Floppy Controller 50
XT Hard Disk Controller 65
XT RLL Hard Disk Controller 75
AT Hard/Floppy Controller 125
RS-232 30
Printer Card 20
Game/Time Card 35
AT I/O 55

MONITORS

Mono $75
Color 250
EGA 350
Thomson Multi-scan 439
Nanao 8060S 550
NEC . . . . . Call

VIDEO & RAM CARDS

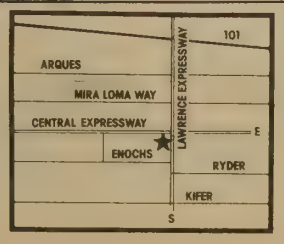
Monographic/printer $45
Color Graphic 40
Color Graphic/printer 45
EGA/HGC/132 col. (640x480) 149
Genoa Super EGA (800x600) 185
XT 2MB EMS Card (OK) 85
AT 2MB EMS Card (OK) 95

DRIVES & MISC.

1.2MB Floppy Drive $95
360K Floppy Drive 72
720K 3½" Drive . . . . . Call
1.44MB 3½" Drive . . . . . Call
20MB Hard Disk ST-225 . . . . . Call
30MB Hard Disk ST-238 . . . . . Call
40MB Hard Disk ST-251 379
80MB Hard Disk ST-4096 769
Math Coprocessor . . . . . Low
Mouse 60
AT/XT Keyboard 49
Enhanced Keyboard 60
150W Power Supply 49
200W Power Supply 69
Modems 1200B/2400B . . . . . Call
Printers . . . . . Call

386 Your XT/AT With an INTEL 386 Motherboard Limited Quantity Available **$1250**

MONTHLY SPECIAL
EGA CARD
(640x350)
$99



YOU WILL LIKE OUR SERVICES

JOINTEK (408) 746-3976

3080 Lawrence Expressway, Santa Clara, CA 95051

Prices subject to change without notice

386 20 MHz 0 Wait EGA System $2199

- Western Digital FD/HD Controller
- Teac 1.2 MB Floppy Drive
- 80287 & 80387 Socket
- 1 MB Static RAM on board
- Landmark=27 MHz
- EGA 640x480 on board
- 2 Parallel & 2 Serial on Board
- Maxi-Switch 101 Keyboard

TURBO XT COMPLETE MONO SYSTEM $429

- 4.77/8MHz/256K RAM
- 360K Floppy Drive
- Hi-Res MGP
- AT Style Keyboard (K151L)
- 150W Power Supply
- High Res Mono Monitor
- Floppy Disk Controller (DTK)
- One Year Warranty

10 MHz SYSTEM $449

6/10 MHz 0-WAIT MONO 286 SYSTEM $845

- 512K RAM Exp. to 1MB on Motherboard
- 1.2 MB Teac Drive
- FD/HD Controller
- 200 W Power Supply
- MGP
- AT Style Keyboard (K151L Available)
- High Res Mono Monitor
- One Year Warranty

BABY AT SYSTEMS AVAILABLE

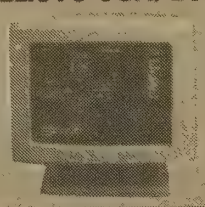
6/12 MHz 286 System $925

Monthly Special

- 14" Paper White Monitor (model QC-1418) with Reverse Mode
- Flat Screen
- Swivel Base
- Universal Power Supply
- One Year Warranty

$119

RELISYS CGA/EGA COLOR MONITOR



Model RE5154

- 14-Inch, Non-Glare Display
- TTL Video Input
- High-Resolution, CGA/EGA Color Monitor
- 64 Display Colors
- 15-Month Warranty on Labor, 24 Months on Parts
- Tilt/Swivel Base

$339

ADD ON BOARDS

Monochrome graphics/Printer Port	$40
Color graphic card/printer port	45
Everex micro enhancer EGA	123
Everex VGA Board	249
Everex Super EGA (800x600)	155
XT floppy controller	22
1.2/360 Floppy Controller	45
RS-232 card	25
AT-I/O card (S/P/G)	55
Multi I/O card (FDC/S/P/D/Clock)	55
Printer card	20
Hard disk controller + cable	65
WD FD/HD Dual Controller	115
DTC RLL Contrlr AT	159
FD/HDD Controller for XT	95
AT Everex 3 MB RAM Card	84
AT MultiFunction Card	105
Memo-576 card (upgrade XT memory)	35

MONITORS

Nanao 8060S (800x600)	$519
Casper 1266	69
Samsung Mono Swivel	$69
Quimax DM-14	125
Samsung Color	235
Relisys 5154	349
NEC Multi-Sync	579

KEYBOARDS

Keytronic 101	$49
K151L (AT Style)	45
BTC 5339 enhanced	49
MCK-101	55
Maxi-Switch 84/101 Key	57/69

DISK DRIVES

Fujitsu 360K/1.2 MB	$69/83
Teac 360K/1.2 MB	75/89
Teac 3.5" Drive (720KB)	89
Mitsubishi 3.5" (1.44 MB)	129
20MB ST-225 Kit	255
30MB ST-238 Kit	279
ST-225	215
ST-238	235
ST-251 (38ms)	389
Micropolis 44MB	CALL
Micropolis 71MB	CALL

PRINTERS

Citizen 120D	$150

MAIN BOARDS

386 M/B w/1MB (static)	$1350
4.77/8 MHz Turbo XT motherboard (OK)	70
10MHz Turbo XT motherboard (OK)	80
Full size 6/10 MHz 0 Wait AT M/B (DTK)	$265
ELT-286B 8/10 MHz Baby AT M/B	299
Baby 386 16 MHz M.B. w/2 MB	1450
Full size 6/12 MHz 0 Wait AT M/B (DTK w/80286-12 CPU)	379

COMPUTER CASE

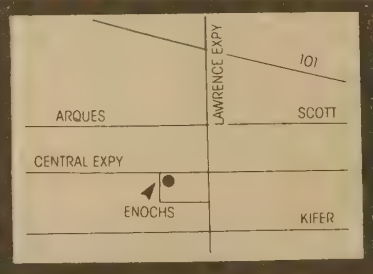
XT Case	$27
AT Jr. Case/XT	32
Small Foot Case w/200 WPS	99
Tower Case	250
AT Case	54

MISC.

DOS 3.3	$85
6' printer cable	$3.50
Keyboard drawer	29
Computer floor stand	14
Power center	19
Printer switch box (AB/ABCD)	20/29
Logic mouse C7/Bus mouse	69/69
Everex modem 1200/2400	75/169
Keyboard Extension Cable	8
Monitor Extension Cable	8

AROMA computer systems

3685 Enochs St.
Santa Clara, CA 95051
Tel: (408) 736-4355 M-F 9-7 Sat 10-4
FAX. (408) 736-4356



Stop eyestrain, backstrain, & tension with Ergonomic Computer Products!

Call for a FREE catalog & OCLI Glare/Guard filter trial

Stressed out by your computer?

- Glare static radiation filters
- Adjustable computer furniture
- Printer sound covers
- 1000's of accessories & supplies that can help you reduce stress and increase office efficiency

ERGONOMIC COMPUTER PRODUCTS

"People Products For The Computer"

San Francisco, CA 415-673-5757

Embarcadero YMCA, between Mission and Howard. Supports C-64/128, Amiga. Write P.O. Box 146731, San Francisco, CA 94114-6731.

dBASE

dBase Users Group of Marin & Northbay. Meetings: monthly, call (415) 488-0342 for info. Open membership, beginners through developers.

DATAEASE

Bay Area DataEase Users Group. Meetings alternate between San Francisco and Palo Alto. Contact Kermit Carter at (415) 945-7817 for info.

DYNABYTE

Dynabyte - Tahoe City Dynabyte Users Group. Swap, buy/sell - boards, parts, units. Write to Drawer 2629, Olympic Valley, CA 95730 for info.

EAGLE

Eagle Computer Users Group. Meetings: 2nd Sat. 9:30-12 noon Tandem Computer H.R. Training Rm., N. Tantau Ave., Cupertino.

EPSON

Epson Users of San Francisco Bay Area. Meetings: 1st Thurs. 7-10 PM Fort Mason, Bldg. C, Rm. 216, San Francisco, CA. For users of Epson (QX, Equity, PX-8). Presentations, support network, newsletter, public domain software.

Epson Users Group of San Francisco, Inc. Meetings: 1st Thurs. 7 PM Fort Mason. Bldg. C, San Francisco, CA. PD-disks, newsletter, BBS, CPM, TPM, ValDocs, MS-DOS.

FIRST PUBLISHER

First Publisher User Group. Members make up 8 1/2 x11 formats for newsletters & tip sheets. $35 annual membership. Contact Raul Ibanez (415) 550-0785.

FORTH

Forth Interest Group of Silicon Valley. Meetings: 4th Sat. 1 PM Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call George Shaw at (415) 276-5953 for info.

Forth Interest Group, North Bay Chapter. Meetings: 2nd Sat. 1 to 5 PM South Berkeley Community Library, corner of Russell and Martin Luther King Junior Way. One block north of Ashby BART station. Contact George Shaw (415) 276-5953.

GAVILAN

Gavilan User Group. Meetings: 2nd Thurs. 7 PM Lockheed Bldg. 162. Cal (408) 379-2774 for info.

IBM AND COMPATIBLES

AI - Expert Systems for Business (ESB). Investigate real business Expert System solutions for PC's. Guest speakers, discussions. Newsletter. $18/yr, $26/yr bus.

Diablo Valley CUG. Meetings: 2nd Thurs. 7:30 1331 Concord Ave. For info write: Box 27155, Concord, CA 94527. Or call (415) 932-2413.

IBM Compatible Users Group. Meetings: monthly, call (415) 969-6916 for info 7-10 PM.

IBM & Compatibles Users Group - Ontario Area. Meetings: Call 982-1270 for Info.

Marin-Sonoma PC Users Group (MSPCUG). IBM PC software & talk, business application oriented, official electronic voice of one of most influential groups. Call (415) 927-1216.

Sacramento PC User Group. Meetings: For information call Jackie Janssen at (916) 383-6900.

San Francisco PC Users Group. Monthly meetings, "Blue Notes" magazine BBS (415) 621-2609.

SF PC Jr. Users Group. Meetings: monthly. Lectures & discussions on usage of software & hardware. Software & book library. For more Info, send SASE to 2336 Market St., Suite 20, San Francisco, CA 94114.

Silicon Valley Computer Society. Meetings: 4th Wed. 7:30 PM Oak Room, at Hewlett Packard, on Pruneridge in Cupertino. Call Kent Stafford for info at (408) 286-2969.

Silicon Valley FOG. Meetings: 3rd. Wed. 7:30 PM Saratoga Community Library, 13650 Saratoga Ave.

South Bay AT&T PC UG. Meetings: Call for info. Call (408) 226-0116

South Bay Users Group. Meetings: 2nd Tues. 7:15 Saratoga Library, 13650 Saratoga Ave., STG.

South Bay WordPefect User Group. Meetings: 2nd Thurs. 7 PM Centennial Hall Conven. Ctr., 22292 Foothill Blvd., Hayward, CA. We offer public domain disks, speakers, newsletter.

Valley Computer Club IBM PC Users Group. Meetings: 3rd Wed. 6 PM Xerox Bldg. 475 Oakmead Pky, Sunnyvale, CA. $24/yr member. Monthly VPUG News, access rights to VPUG-SIG Advice on desktop pub. techniques, new products, bugs, etc.

Diablo Valley PC Users

FREE ON SITE INSTALLATION WITH COMPLETE SYSTEM

We Carry A Full Line Of The Following Products With The BEST Prices

COMPUTERS

IBM
Compaq
AT&T
AST
Toshiba
Mitac
NEC
AMT
Multitech
Wyse
ALR
Televideo
Zenith
Samsung
Everex
Sharp
& Compatibles

HARDWARE

IBM
Compaq
Seagate
Citizen
Samsung
Epson
Toshiba
Hewlett-Packard
Star
Novell
Mitsubishi
Paradise
Amdek
Sony
Casper
Genoa
Everex
AST
ATI
Xerox
Orchid
Micropolis
Miniscribe
Intel

SOFTWARE & PERIPHERALS

Lotus
Borland
IBM
Apple
Ventura
PageMaker
MicroPro
WordPerfect
IUS
Accountmate
PC Mouse
Logitech
Maxell
Verbatim
Xidex

CALL FOR PRICES & MORE INFO

CRESCENT COM INC.

214 Francisco Lane, Fremont, CA 94539
(415) 490-7967

690 Market Street • Suite 515 • San Francisco, CA 94104
(415) 362-7120

3531 Ryder Street • Santa Clara, CA 95051
(408) 738-2480

SATURDAY
MAY 14
COMPUTER BARGAIN SHOW

BAY AREA
Computer Swap

EVERY ITEM ON DISPLAY IS AVAILABLE FOR IMMEDIATE PURCHASE AT BARGAIN PRICES

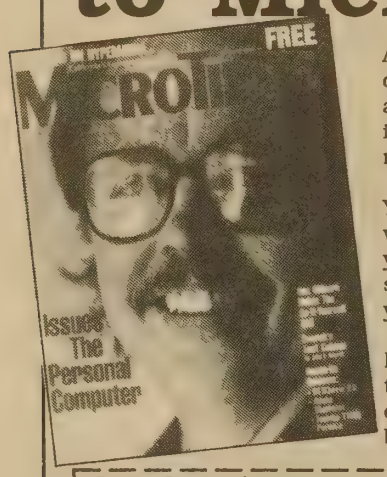
Alameda County Fairgrounds
Pleasanton, CA

DIRECTIONS: From Hwy. 680 Exit Bernal Ave East. Left at Valley Ave.

Admission $5 Children Under 12 FREE SAT. 10 a.m. - 4 p.m. For Info. Call in CA 800-433-7469

A MICROSHOWS PRODUCTION

Subscribe to MicroTimes



And you'll be the winner in more ways than one! You'll get new product updates, software and hardware reviews, industry news and information, user group info, and so much more.

You'll be right on the pulse of the computing world you live in here in California. And you'll never miss a beat, because you've subscribed to MicroTimes and it's delivered to your home every issue.

Plus, in MicroTimes, you'll be able to find all the products and services you'll need to keep computing from local computer stores and businesses.

Start Our subscription-
Company Name_____
Name _____
Address _____
City _____
Please send me: ❑ Bay Area Edition ❑ L.A. Edition
Inside U.S.
❑ 1st Class $50/12 issues
❑ 3rd Class $24/12 issues
Allow 3 to 4 weeks for delivery
In Mexico & Canada $40
Overseas (surface mail) $40
❑ I have enclosed check for $_____
❑ Please charge $ _____ to Visa/MC
_____ Exp. _____
Card Name _____
Signature _____
Mail to: MicroTimes Subscriptions, 5951 Canning Street
Oakland, CA 94609, (415) 652-3810

Group. Meetings: Walnut Creek, CA. Write: P.O. Box 8040, #117, Walnut Creek, CA 94596.

San Francisco PC Users Group. Meetings: 3rd. Mon. 8 PM Bldg. A, Fort Mason, San Francisco. Over 150 public domain software disks, excellent monthly newsletter. 800+ members, $30/yr.

MACINTOSH

Tri-Valley Macintosh Users Group (TMUG). Meetings: 2nd Fri. 8 PM Chabot College, Rm. 600, 25555 Hesperian Blvd., Hayward, CA. Access to a variety of pub. domain software, education modules "problem solving" peripheral committee.

Berkeley Macintosh User Group (BMUG). Meetings: every Thurs. 6 PM Physical Sciences Lecture Hall, UC Berkeley Campus. SIG meetings on Mondays, Tuesdays & Wednesdays. Call for this week's topic. (415) 849-9114. BMUG, 1442A Walnut St., #62, Berkeley, CA 94709.

Diablo Valley Apple Users. Meetings: 1st & 3rd Fri. 7 PM Willow Creek Ctr., 1026 Mohr Lane, Concord, CA. SIG's meet monthly. Featuring library of pub. domain software & club's DOM's. Newsletter, demos, group buys hard/software.

MacCruisers — Santa Cruz. Meetings: 2nd Wed. Jade Street Community Ctr. at 45th Ave., Capitola, CA.

MacNexus — Sacramento's Macintosh Users Group. Meetings: 3rd Thurs. 6:30 PM Call (916) 446-2411 for info. 350 members, but still informal. Extensive public domain collection.

TI-West. Meetings: 4th Wed. 7 PM 4637 Chabot Dr., Rm. 107, Hacienda Business Park, Pleasanton. Newsletter, large P/D library. Contact James (eves) (415) 462-7536.

Christian Macintosh User Group, Silicon Valley Chapter. Meetings: 1st Thurs. San Jose. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913.

Christian Macintosh User Group, San Francisco Chapter. Meetings: 2nd Thurs. San Francisco. Newsletter and support available. Contact Rick Thrasher at (408) 437-1913. Bible Study and DTP SIGS.

MICROSOFT

Mirosoft Word SIG of the SVCS. Meetings: 4th Mon. 7:30 PM Hewlett—Packard, Oak Room, Pruneridge at Wolfe, Cupertino. Contact Bill West (408) 356-8805 or Hunter Jackson (4080 446- 4097.

MORROW

BAMDUA (Bay Area Micro Decision Users Assoc.). Meetings: 3rd Tues. 7:30 PM Albany Senior Center,846 Masonic Street (just north of Solano) in Albany, CA. Voice:(415) 534-4257. BBS:(415) 654-3882. P.O. Box 5152 Berkeley CA 94705.

NEC

Bay Area NEC/100 Users Group. Meetings: 1st and 3rd Thur. 7:30 PM Room 209C at College of Alameda. For those interested in laptops, especially Kyocera 80C85 type (NEC 8201a, Radio Shack Model 100 or 102. Call (415) 658-1889.

NOVELL

Novell Users Group - Silicon Valley. Meetings: 3rd. Wed. 7 PM 1170 Morse Ave., Sunnyvale, CA.

ORACLE

Northern California Oracle UG. Meetings: Call (408) 738- 8330 for info. meets every 3 months at different Bay Area locations. Newsletter published between meetings.

PLUS/4

PLUG (The Plus/4 Users Group). No regular meetings. Over 800 members internationally.

TANDY/ RADIO SHACK

Tandy 1000 (The Mug). Mail-based user group w/ monthly newsletter. Not for PC jrs. Members communicate through newsletter. $8/yr. fee; checks to: Daniel Tuma, 30 Arjang Ct., Alamo, CA 94507-2041.

BYTE Bandits of America. Meetings: Campbell. Call (408) 379-2774 for info.

Model 100, 102 & 200 Support. Meetings: Int'l support by mail, voice & BBS. Free on-line weekly news letter. Write Club 100 984 Hawthorne Dr., Walnut Creek, CA 94596. Or call (415) 937-5039.

TRS Nybblers. Meetings: 2nd Fri. 8 PM Chabot College, 25555 Hesperian Blvd., Hayward. MS-DOS, CP/M, laptops, Mod 1, 3, 4, Mod 2, 12, 16, 6000. Bud Gallagher (415) 522-5960 or Bruce Jarvis (415) 846-3575.

REVELATION

Bay Area Revelation UG. Meetings: 1st Tues. Call (415) 759-1210.

SANYO

Sanyo PC Hackers. Meetings: 1st Wed. 7 PM Mercury Room, Mercury Savings & Loan, 99 El Camino Real, Menlo Park.

SOLOMON

Solomon User Group of Silicon Valley. Meetings: For info contact Grihalva Associates, 39899 Balentine Dr., Suite 175, Newark CA 94560.

San Francisco Solomon III Users Group. Meetings: last Wed.,odd months 6-9 PM Price Waterhouse, 555 California St. 36th Fl., San Francisco. Annual membership - $50; corp. membership - $75.

S—100

S—100 Business Users Group. Meetings: 4th Tues. 7:30 PM Santa Clara Univ., Rm. 101, Bannan Engineering Bldg. CP/M & MS-DOS libraries. BBS: (408) 262-5150, 8-N-1,2400/1200/300.

TEXAS INSTRUMENTS

Brea 99'ers Users Group. Meetings: 1st Mon. 7:30 PM Mercury Savings, La Habra, CA.

Thousand Oaks Personal Computer Club (TOPCC). Meetings: monthly. Call: (714) 686-0336.

TIMEX/SINCLAIR

Timex/Sinclair Users of Silicon Valley (GUTS/SV). Meetings: each Sat. 9 AM Stanford Univ., Jordan Hall (quadrangle), Math Bldg. RM 380C. SW library & newsletter. For topic check PDSE BBS in Sunnyvale (408) 735-7390, 300/1200, 8-N-1, 24 hrs.

VENTURA PUBLISHER

VPUG (Ventura Publisher User Group). Meetings: 3rd. Mon. 6:30 PM Fort Mason, Bldg. A., Rm. 5 San Francisco, CA.

Send your User Group Listing to:
User Groups,
MicroTimes
5951 Canning, Oakland 94609
(15 words or less please.)

SMART BUSINESS CHOICES FOUNTAIN

- ✔ High Performance
- ✔ National Network Services
- ✔ Economical Prices

FTN-286
FTN-386
...

FOUNTAIN FTN-386

- Fully COMPAQ®386 Compatible
- Intel 80386 Microprocessor
- 16 MHz CPU clock speed/8 MHz AT speed available
- Math Co-processor Socket available
- 1 MByte RAM standard/maximum 2 MByte on board, using 51258 SRAM chips
- Enhanced IBM PC/AT 101 Key Keyboard
- 1.2 MByte Floppy Disk Drive
- Seagate ST4038, 30 MByte fast Hard Disk Drive
- Auto switch EGA Display Adaptor with EGA Monitor
- 40 MByte or higher, high-performance Hard Disk available
- MS DOS 3.20/GW BASIC and operating manual
- Downward compatible to AT/XT systems
- FCC Class B

FOUNTAIN FTN-286

- Fully IBM®PC/AT Compatible
- Intel®80286 Microprocessor
- 6/8/10 MHz switchable CPU clock speed
- 80287 Co-processor socket available
- 1 MByte on-board memory; 512/512 or 640/384K split
- Standard IBM®PC/AT 84 key keyboard layout
- 1.2 MByte Floppy Disk Drive
- Seagate ST4038, 30 MByte fast Hard Disk Drive
- MS DOS 3.20/GW BASIC and operating manual
- Expandable to a professional system, using FOUNTAIN®ADD-ON peripherals
- One year parts and labor warranty

Options: ■ Zero Wait State ■ 10MHz ■ 40 MByte Hard Disk ■ Monochrome Display ■ Color Display ■ EGA

- FCC Class B

FOUNTAIN Maxturbo

Same as FOUNTAIN XT-II with 4.77MHz/8MHz switchable CPU clock speed.

- FCC Class B

FOUNTAIN Port AT

Fountain Portable Port Machine

- IBM Compatible
- Intel 80286 microprocessor
- 6/8/10 MHz switchable CPU clock speed
- 80287 Co-processor socket available
- 1 MByte on-board memory; 512/512 or 640/384K split
- Standard IBM PC/AT 84 Key Keyboard layout
- 1.2 MByte Floppy Disk Drive
- Seagate ST225, 20 MByte Hard Disk Shock mounted
- Dual mode high-resolution 720x348 Pixel Density Monitor
- Hercules Compatible Monochrome Graphics Display Adaptor
- MS DOS 3.20/GW BASIC and operating manual
- FCC Class B

FOUNTAIN XT-II

- Fully IBM PC/XT Compatible
- Intel 8088 Microprocessor
- 8087 Co-processor socket available
- 640K on Motherboard
- Eight I/O slots
- EPROM socket for program expansion
- 20 MByte hard disk
- Hercules compatible high-resolution display adaptor
- DD/DS Drive
- FOUNTAIN®monitor w/swivel base
- AT style keyboard
- MS DOS 3.20/GW BASIC and operating manual
- One year warranty

Options: ■ Multi I/O ■ Ports ■ Enhanced Keyboard ■ Color Display ■ EGA Display

IBM PC/XT and PC/AT are registered trademarks of International Business Machines Corporation

For more information, call or write to Your Bay Area Dealer

MICRO DISTRIBUTION CENTER

MICRO DISTRIBUTION CENTER

525 Del Rey Avenue, Unit H, Sunnyvale, CA 94088 (408) 730-6965
15524 Broadway, Center Street, Gardena, CA 90248 (213) 515-0155

FOUNTAIN

CLASSIFIEDS

BUSINESS OPPORTUNITIES

REVERSE MERGER

Tiny Public Company Available (Not A Shell). Ready to begin trading but lacks financial muscle. This nice little vehicle needs an engine.

POB 2730 San Francisco, CA 94126

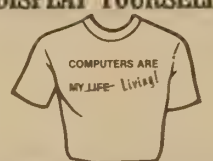
EMPLOYMENT OFFERED

AutoCAD Maniac? Computer Hacker Extraordinary? Could you qualify for the Autodesk Product Support Team? Send Resume to: Autodesk, Inc., Personnel #MT, 2320 Marinship Way, Sausalito, CA 94965.

Computer & Software Sales Rep Wanted
Immediate opening for the right person. MS DOS experience required. Competitive salary. Great working environment.
Send resume to: **Friendly Software**, 376 El Camino Real, San Carlos, CA 94070. **(415) 593-8275**

FOR SALE

DISPLAY YOURSELF!



"COMPUTERS ARE MY LIVING!"
Printed in white and red.
On black or gray t-shirts, $11.50 ea.
On gray sweatshirts, $20.00 ea.
Specify color/size (S, M, L, XL).
Add $1.00 per item shipping.
Allow 4-6 weeks for delivery.
Checks or money orders to:
INTERMEDIA
P.O. Box 27670
Los Angeles, CA 90027

HARDWARE FOR SALE

WORKSLATE complete with printer, comm port, all software & supplies; Like new $300, (415)964-5353.

Repair Your Home Or Office Computer And Printer Easily -You can once you know the causes of a particular problem. Unique, easy to follow repair flowcharts on your computer, printer, disk drives, keyboard, and monitor tell you the causes of your computer problems and what to check to correct them. Good for all computers and printers. No repair experience necessary. Know what to do when your computer or printer breaks down. Receive a free guide to locating and replacing defective memory chips with your order. $12.95 for the complete set of flowcharts plus the free memory chip guide. Computer Care, 3669 Grand Avenue, Oakland, CA 94610.

Computers Bought & Sold - California Computer Exchange, (415) 552-0920 or (800) 652-1532.

Super Vision IV Computer, P92 Micromatic, LX529 Telephone Coupler, P101 Micro Cassette Transcriber, LX-069 Bar Code Reader, LX-055 Foot Control, NT-004 Head Set, 25 MC-60 Cassettes. Approx. 19 months old. To be sold "as is, where is" to highest bidder. (415)972-8714 for info.

2 PC JUNIORS, 1 with 640K internal modem, amber monitor, accessories. $600 gets everything. (415)658-4606.

S-100 Mainframe, 8086 board set, floppy disk controller and drives (1Mbytes), etc. Must sell. (408)727-1295.

IBM PS-II Model 50 -Toshiba 321-SL printer, Wordperfect 4.2, X-Tree, more. Like new! $3,300. (415) 885-6343.

PCJR Accessories second drive, memory expansion, mouse, modems, joy sticks and more. Pick up or mail order. Phone (415) 431-8399.

Northstar Horizon, 2 floppy drives, wood case, no terminal, excellent condition. Bruce, (415) 658-9545, leave message.

Logic Analyzer: Tektronix DAS 9122, 48 Lines Aquisition, 16 Lines Generation, Glitch Latch Data Tape Storage, $21K (415)654-6901.

Laser Cartridge Recharge - Lower on price, longer on life. Lower: $45 special incl. S/H back. Longer: 30% more. 24 hour turnaround. Call/Send Laser Reprint Box 70334, Stockton, CA 95207, (209)476-8050.

APPLE IIe SYSTEM -Loaded with hardware and software. Printer, modem. Like new. $1000. (415)493-6373.

PC-AT. Call for details. Leave message (415)487-5976.

T3100/10 PC-AT LAPTOP w/ warranty 10M-HD, 31/2 Floppy $2495, desk w/ drawers quality brown. Excellent $109 (408)358-3721.

Decwriter III Keyboard Printer -Good condition. $150. (408) 727-1870. Ask for Pari.

EPSON LQ-1000 w/ tractor feeder and IBM graphics module, 5 months old; $550. Princeton SR12 Monitor; $275/bo. (415)665-5575, Chun.

SERVICES

EMERGENCY WORD PROCESSING! Laser letter quality printing. IBM & McIntosh. Pick up and delivery. (408)984-3622.

Need a Professional Guide to Help You Computerize Your Business?
Call: (415) 848-2080
• R:base (Authorized Consultant)
• Custom Programs
• Training
• LANs
Longwell Associates
6938 Buckingham Blvd., Berkeley, CA 94705

Professional Association of Secretarial Services (P.A.S.S.) -Self employed word processors. Second Saturday. Oakland. Nina Feldman (415)655-4296.

Computer Mailing Lists Computer dealers, user groups, publications, end users and more. Send for free catalog. Buffalo Enterprises, Po Box 29 Sebastopol, Ca 95472 (707) 823-3239.

User Documentation Service -(415) 586-4577 makes your notes into a professional user-friendly manual. Free estimate.

Networking PC's?
NOVELL
Systems • Training
Support
Our specialty—Novell NetWare. If you're considering a Local Area Network or need help with an existing LAN, call us today.
• 3 yrs. NetWare Experience
• Novell Certified Instructor
No gimmicks, just good, honest, cost-effective service.
Rockridge Computer Systems
415-653-6665

AccounTech
dBASE/Clipper programming
for...Accounting (SBT and SourceMate)
Bar code systems
Project Management
Remote Systems
LANs (Novel Netware, PC/NOS)
Special Requests
(408) 985-2222
3031 Tisch Way, Suite 200
San Jose, CA 95128

Computer Help!
PC support, beginners/advanced. Consult, install, configure, troubleshoot PC, XT, ATs, printers, scanners, displays, drives, add-ons, batch files. Software help for DOS, MS Word, Word Perfect, Ventura Publisher, Utilities, more.
Telephone Support
Integral Data
(415) 821-6846

Free AutoCad Training -for employees of A/E firms. Call (415) 543-3383 for qualifications.

Rent-A-Writer's Professional Technical Writers -will come to your site or work independently to document all your hardware, software and temporary writing needs. Call (415) 841-8003.

Macintosh Consulting, Training & Support -fully integrated data base, custom built to your business needs. Professional Quality & personal service. Pacific Micro Design, (415) 475-7047.

Save Money! -Lazer cartridges recharged 1/2 price of a new cartridge. Satisfaction guaranteed. Laser Cartridge Service. (408) 996-3776.

Printer Care -Factory authorized warranty service center. Citizen, Star, Towa. Service, Parts & accessories. (415) 471-2720.

LOOKING FOR SOME GREAT CONVERSATION?
JOIN US ON THE WELL!
Right now there are interesting intelligent people like you holding discussions, making contacts, networking, arguing, storytelling, joking . . . and it's all just a few keystrokes away. Join our fascinating and lively online community.
Only $8/monthly + $3/hour
Sign up by modem: 415/332-6106
Or call for information: 415/332-4335
THE WELL (WHOLE EARTH 'LECTRONIC LINK)

INDEPENDENT CONSULTANTS
We develop quality systems at reasonable rates. All types of programming available (specializing in dBase III). Call Joy for a free estimate.
☐ Custom Programming
☐ Hardware/Software Installation
☐ Training and Support
ACCELERATED INFORMATION, INC.
(415) 543-7998

To Place A Classified Ad

Free Ads: Private individuals may have one free classified ad of 15 words or less,* additional words are 50¢ per word. A phone number, including area code, counts as one word. If you want your ad to run more than once, all subsequent printings will be charged at one half business rates.

Business Ads: Rates are $15 for 15 words or less. 50¢ for each additional word. Again, your phone number counts as one word.

To Order By Mail: Send coupon to:
MicroTimes Classifieds
5951 Canning St.
Oakland, CA 94609

To Order By Phone with Visa or MasterCard only. Call: **(415) 652-3810.**

Classified Deadline, July Issue:
May 27, noon

*All Categories EXCEPT Personal.

For a mere fraction of your paycheck—buy, sell, trade, whatever. Just $15 for the first 15 words plus 50 cents for each additional word, per issue.

Category
☐ Employment Offered ☐ Employment Wanted ☐ Personal ☐ Services
☐ Hardware For Sale ☐ Office Space ☐ Wanted ☐ Will Trade
☐ Software For Sale ☐ Video ☐ Equipment

_____
_____
_____
_____

Cost of ad _____ X number of issues to run _____ = Amount Enclosed _____

Send Check ☐ Money Order ☐
Visa ☐ or MasterCard ☐ Exp. Date _____
Account # _____
Signature _____

Aovertisers Name _____
Street Address _____
City _____ State _____ Zip _____
Phone (_____) _____

Send To: MICROTIMES Classifieds
5951 Canning Street
Oakland California 94609

Network & Consulting Specialists

- Documentation & Training
- Custom Programming— PC's, Mini's & Mainframes
- Multi-user Systems
- Inventory/Accounts Receivable Systems
- Gateways to Mainframes
- On-Site Maintenance Available
- Training & Support
- Call for FREE Consultation

International Micronet Systems
916 Clement Street, S.F., CA
(415) 752-8843
Refer to Display Ad Page

Old Style MicroSoft Serial Mouse Wanted -new or used. Will pay premium. Call (415) 683-2730.

Sales

Telephone Sales Pros

Are you an outgoing, motivated individual looking to apply your talents in a rewarding position?

We are a rapidly growing five-year-old company looking for people to sell major-brand computer and business electronics products from our convenient Van Nuys location.

If your background is sales and you've got excellent phone skills and some knowledge of computers, then you're just the person we're looking for.

In return for your enthusiasm and experience, High Technology Distributing Company offers an attractive commission program, excellent benefits package, and fast-moving products to sell.

To schedule an interview, please call Ms. Tom at (818) 994-8001 between 10 am and 5 pm. EOE.

HIGH TECHNOLOGY DISTRIBUTING COMPANY, INC.

MicroTimes Classifieds Keep You In Touch

SOFTWARE FOR SALE

Programs For Microsoft Windows -Spelling Checker; $89.95, Typing Teacher; $34.95, Windows programmer's reference manual; $19.95, Programmer's starter kit; $49.95, and more! Send SASE for details. California residents add 7% tax. Kwan Technologies, Box 64160, Sunnyvale, California 94086-4160.

IBM & Compatible Software. Call for listings and prices. Leave message (415)487-5961.

DESIGN CAD 3-D IN ORIGINAL WRAPPING.. Never used. $250/bo (415)530-1828.

IBM Software only $1.99 per disc. For free 16 page catalogue call 24 hour software hotlines-Voice (408)946-3663, Modem (408)946-8561 or write Pacific Exchange, 333 Cobalt Way, Suite 107, Sunnyvale, CA 94086. Satisfaction guaranteed.

Great Plains V4.2 Payroll Module; 30 Day Free Technical Support; $400; (415)331-9355.

WANTED

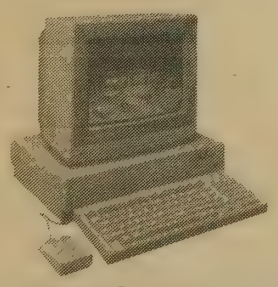
WANTED: Computer & electronic scrap. Precious metals in any form. For top prices & full details call: West Coast Metals Process, Inc. 1468 Zephyr Avenue, Hayward, CA 94544 (415)489-8141.

COMPLETE SELECTION
COMMODORE - AMIGA - ATARI ST
HARDWARE and SOFTWARE

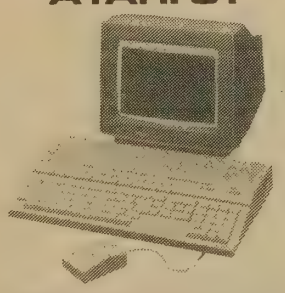
AMIGA AND ATARI ST COMPUTERS
LET US HELP YOU DECIDE WHAT'S BEST FOR YOU

NEW AMIGA 500 AND AMIGA 2000
ATARI MEGA ST 4
ALL SYSTEMS ON DISPLAY

AMIGA



ATARI ST



PANASONIC PRINTERS
NEC PRINTERS
XEROX COLOR PRINTER
ROLAND XY PLOTTERS
CASIO KEYBOARDS
1200/2400 MODEMS
VIDEO DIGITIZERS
20 MEG HARD DRIVES

HT ELECTRONICS, INC.

346 W. MAUDE AVE.
[MAUDE AND MATHILDA AVE]
[ALPHA BETA SHOP CTR]
SUNNYVALE
[408] 737-0900

5379 PROSPECT ROAD
[LAWRENCE AND PROSPECT]
[WESTGATE SHOP CTR]
SAN JOSE
[408] 255-1490

HOURS: M-F 9:30 - 6:00. SAT 9:00 - 5:00

EFI'S Discount Computers

Complete systems from:
AST RESEARCH INC.
WYSE
ZENITH
AT&T
IBM
COMPAQ
TOSHIBA
NEC
SAMSUNG
EVEREX COMPUTER SYSTEMS DIVISION
SPERRY
SHARP
XT/AT 386 CLONES

SOFTWARE

Lotus 1-2-3	299
Word Perfect	209
dBase III+	389
Ventura	489
Paradox II	435
Norton Utilities/Advance	59/85
Turbo C	63
X-Tree	49
FastBack	99
Desqview	69
Generic CADD	59
PageMaker	419
Simple Database	299
PC Tax Cut	49
MS Word	225
Smart w/Spellchecker	479

DISK DRIVES

20/30 MB w/contr.	299/329
Half ht./Full ht. drives	$CALL
Plus 20/40 MB Hard Card	569/719
Archive 40MB tape BU	355
WD file card 20/30MB	399/429
40 MB half ht./Full ht.	429/559

SUPPLIES

3M DS/DD Diskettes	8.95
Dysan Hi Dens	19.95
Ribbons/Chips/Paper	$CALL

HARDWARE

Vega Deluxe/VGA	209/299
Paradise EGA/EGA 480	149/175
Genoa 800 x 600	229
Six Pak 384K	219
AST Advantage 128K	239
Intel Above PC/AT	255/379
Orchid Tiny/286E	295/739
Hayes modems	$CALL
Everex 1200B Modem	89
Hercules color/mono	$CALL
Generic mono/color/EGA	89/159
8087/80287	115/179
Intel PC 386	835
MS bus/serial mouse	105

PRINTERS

Citizen 120 D/Premier 35	169/469
HP Series II w/toner	$1745
NCR, Canon, Quad Laser	$CALL
Automatic Printer Switch	69
Epson, Toshiba, Brother, NEC, Primages, Diablo, ALPS Okidata, RCA, Panasonic	$CALL

MONITORS

Sony/Mitsubishi	$CALL
Amdek 410A/722	149/469
NEC Multisync/+	619/999
Samsung Amber/EGA	85/379
Magnavox CGA/EGA	279/379

Free delivery and installation of systems within 30 miles.
Free in-store installation of any product.
Prices reflect 3% cash discount.
CALL US FOR YOUR PRICE ON ANY PRODUCT.
HOURS: MON.-FRI. 10-6, SAT. 10-2
3441 GOLDEN GATE WAY, LAFAYETTE, CA 94549
(415) 283-1700
CALL BEFORE YOU BUY
Prices may change without notice. 90 day warranty on all products.
MasterCard DISCOVER VISA

DISCOVER CALIFORNIA'S

COMPUTER SERVICE PROFESSIONALS

- IN HOUSE AND FIELD TECHNICAL SPECIALISTS
- VARIED MIX AND MATCH SERVICE PLANS
- STATEWIDE SERVICE AREA
- DEALER PROGRAMS
- TECHNICAL PHONE SUPPORT

Micro Computers • Laserjet Printers • Dot Matrix and Daisy Wheel Printers • Local Area Network • Video Display and Graphic Terminals • Line Printers

JOIN THE 100's OF SATISFIED CUSTOMERS TODAY!

ATS

AUTHORIZED TECHNICAL SERVICES

477 Roland Way, Oakland, CA 94621

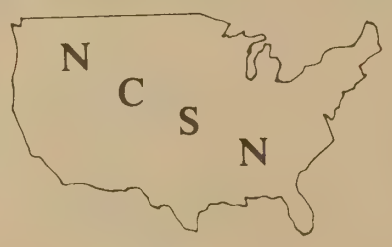
OAKLAND
(415) 638-4449

SACRAMENTO
(916) 923-2944

ORANGE COUNTY
(714) 937-0332

LOS ANGELES
(213) 568-8862

SAN JOSE
(408) 970-9860



MEMBER OF
NATIONAL COMPUTER SERVICE NETWORK

1-800-451-4057

ADVERTISER'S INDEX

3F Associates 39
5M American Technology 12
800 Software 34
Aborn Computer 108
ACADemy, The 130
Access Computer 85
Advanced 4,5
Alpha Fine Computer Furniture ... 32
Americal Group 161
American Computer Systems 3
American Digital 68
American Expositions, Inc. 142
American Ink Products 12
Aroma Computer 166
ATC 8
Authorized Technical Services .. 172
Belmont Computer Products 32
Cimpex 99
Comart 13
Computer Attic 7,141
Computer Centrum 78
Computer Furniture 98
Computer Graphics Center, Inc. 164
Computer Insights 173
Computer Spectrum 143
Computer Surplus Store 120,157
Computer Swap 111,120,168
Computerland Colma 71
Computertime 27
Computown 43
Cooperative Type 154
Crescent Com 167
Cypress Distributing 111,114,130,134,174
D-Data 131
Darcom Computer Products 79
Data One 57
Diamond Software 29-31
Discount Micro World 36,37
Dynamac 77
E.M.S. (Enhanced Micro Systems, Inc.) 33
East-West Computer Shows 81,104,162
ECX Computers 110
EFI's Discount Computers 171
Ergonomic Computer Products . 166
Friendly Software Store 83
Fry's 2,87-96
Fujitsu 99
Gates/Toshiba 25
GCH 159
Generic Computer Systems 134
Guenther Computer 139
Guitar Showcase 145
H&R International 130
H.I.M.S. 61
Halted Specialties 115
Headmaster Repair Inc. 64
Heath Zenith 164
Hellman's 77
Hex Computers 114
HT Electronics 171
Hyperage 97
ICB 154
ICON 154
IMC 67
International Micronet 54,55
Jemini Electronics 163
Jointek 165
Julian Systems 73
Kenfil/Compuserve 175
Klynas Engineering 114
LA Computer 42
Laser Today International 156
Lucas International 154
M.A.C. (Modern Accessories for Computers) 133
MAC Garden 76
Managing Technology 16,17
Manex Co. 78
Micro Age (Pleasanton) 129
Micro Distribution Center 169
Micro Service Center 40
Micro Star Software 46
Micro Strategies 113
Micro-Tech International 107
Microcom Systems 28
Microware Exceltek 125
Microworld 147
Millenium Communications 18
Mini Micro Supply/NEC 41
Mini Micro/Brother 11
Mini Micro/Seagate 35
Monarch Computers 123
N.C.C. 103
NDN Enterprises 100
Network Associates 65
Nordic Computers 149
OEMI 9
PC Options 158
PC Plus Consulting 19
PC Pro 101
PC Upgraders 109
Peripheral Land 75
PMA 27
Precision Software Products 10
Precision Tech 158
Printer Works 44,45
Professional Computer Management 22
QSP Inc. 59
Quality Computer 28
Quality Micro 153,160
Rosehill Systems 20,21
Santron Computers 53
Schwab Computer 164
Sci-Tech Computer Stores 62,63
Softnet Communications 24
Software City 49
Software For Less 111
Songtech International 64
Storage System 38
Sturgill & Booth 40
Subscription Coupon 168
Summit Micro Designs 156
Supersoft 69
Surah 164
Tanstaafl 23
Task Technology 119,176
Technoland 127
Tek Computer 51
The Computer Store 151
Tokyo Electroland 26
Toptek Micro Center 105
Transnet 135
Universal Computer Products ... 117
Valleytek International 42
Wellway, International 15
Western Micro Market 155
Winners Circle 121
Xerox Computer Repair Center ... 18
Yes 137

Tell them you saw it in MICROTIMES!

Lowest Prices Ever on KAYPRO Computers

Here Are 6 Reasons to Choose the KAYPRO 286

1. Non-Obsolete Design.
Updates simply snap into place. With OS/2 compatibility - guaranteed.

2. The Complete Office System.
Top-quality monitor, 101-key keyboard, 5 expansion slots, and 1 MB of RAM.

3. 12 MHz High Speed Processing.
Or switch easily to 6 MHz.

4. 12-Month Warranty.
Standard with every KAYPRO 286.

5. American-Made Quality, Service, and Support.
For business solutions Made-in-the-U.S.A.

6. Lowest Prices Ever
On Kaypro Computers

CLONE PRICES
KAYPRO FEATURES
& QUALITY

Special Purchase Pricing

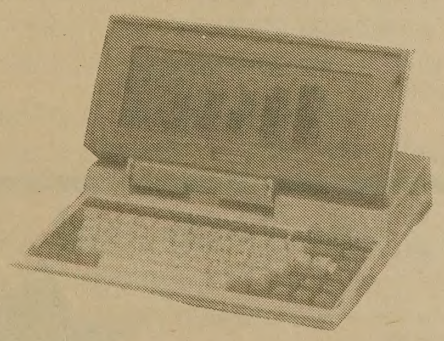
*12 MHz KAYPRO

20 MB COMPLETE SYSTEM **$1995**

Includes:
- 1 Meg RAM
- 20 MB Hard Disk
- 12 MHz Speed
- 1.2 MB Floppy Disk
- Keyboard
- Monographic Card
- Hi-Res Mono Monitor
- I/O Card
- Parallel/Serial
- MS DOS/GW BASIC
- Options:
- 40 MB Hard Disk. . . .ADD $200
- EGA System . . . . . .ADD $400
- EGA System w/Multiscan

TOSHIBA T1000 LAPTOP COMPUTER

Only
$745
While Supplies Last



Call For Best Kaypro Prices In The Bay Area

master charge VISA

COMPUTER INSIGHTS
Specialists in Computer Applications to Business

We Will Meet or Beat Any Advertised Kaypro Price On New Products

40961 Grimmer Blvd., Fremont, CA 94538 (across from Tri-City Sports) **(415) 490-0685**

DVORAK'S LAST COLUMN

The Mail Of The Rich And Famous:

Letters to Dvorak That Were Never Received, Or Wouldn't The World Be A Better Place If This Were All True?

By John C. Dvorak

Dear Mr. Dvorak,

I need your help. I can't figure out what's wrong with my management style. People say I'm abrasive and treat people like dirt. I yell at secretaries and they say I act like a kid all the time. I took the criticism seriously a few years back and even stopped eating meat after I read in a health food store that the chemicals in red meat go into your system and make you violent. It didn't help. Now people think I'm a nutty vegetarian. I suppose if I ate cockroaches they'd think that was weird too! I gave up listening to them. I figure that those who criticize me are the ones who are crazy and out to get me. I don't care. This means nothing to me anymore. I have a new computer that I need to get out and it seems that the way things are going it will never be released. This is what's important to me now. Can you recommend a good book on management or productivity that I can read? Also what should I call the computer and what color would you recommend for it? Thanking You in Advance.

I remain,
Steve Jobs
NeXT Corp.

Dear John,

I've disagreed with you in the past, but I have to admit that reading your various columns over the past few years you've been right most of the time. In fact I had the research department here at Apple look at those old columns you used to do for *Infoworld* and other publications back in 1982 or so and we discovered that your predictions and insight were incredible. We're sending you a retainer for $100,000 (check enclosed) to help us plan out next computer roll-out. We need your help. I was particularly impressed by your accurate critique of our old Lisa computer. You were sure right about those dumb disk drives we put in them. We don't want anything like that to happen again. If you don't want to help us, that's okay too. Keep the check and consider it a "thank you" for a job well done.

Sincerely,
John Sculley
CEO Apple Computer

Johnny Baby,

Like I was really radically bummed by a recent criticism you wrote about Microsoft *Word*. Well, I really took your advice and really tried *WordPerfect* and found it to be much better than our product, for sure! I especially like the new *WordPerfect 5.0*. It's fantastic. It's so cool, I decided to take Microsoft *Word* off the market. In fact, I began to look at a bunch of our offerings and see that a lot of them aren't what they should be. So I'm taking them off the market too. Thanks for setting me straight. Enclosed find a set of keys to a new Porsche 928S which will be delivered to your home tomorrow. Drive carefully!

Groove on,
Bill Gates
Microsoft

Dear Mr. Dvorak,

I read with trepidation your recent criticism of our company. First you described us as "mammoth" in size, then you said we were "brutal" in our business tactics as you quoted from various books written about us that outlined some dubious practices. I had never heard of these books and picked up some copies. Boy oh boy. They never told us about any of this stuff in class! It's incredible what we've done. How come the government anti-trust people didn't do something? Holy cow. Well, let me just say that I'm going over the corporate records and I am going to document every dirty trick and cheap tactic we've ever pulled and I'm going to march these documents over to the Justice Department and say, "Look, you jerks! I don't know if any of this stuff is illegal or not. All I know is that we intend to be straight shooters and set a good example for the youth of America. Do with us as you see fit. Meanwhile get off your duffs!"
Thanks for your help!

Sincerely,
John Akers
IBM
P.S. We're dropping that silly dress code too.

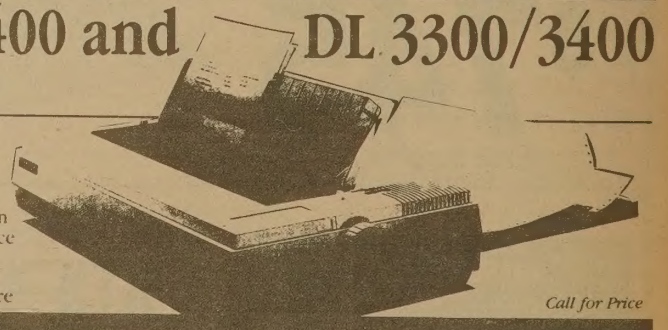
Dear Mr. Dvorak,

I always thought that I was your biggest fan until I found out that here on Capitol Hill EVERYBODY has a mail subscription to all the publications you write for. Despite what Casper says about you behind your back, I find your insight and analysis very valuable. I only have one question. If I want to do some simple word processing, but I don't want to spend a lot of time learning about computers, should I get an IBM or a Macintosh? Are clones any good? Where do I get them serviced if they break? What's the best word processor and do I really need a powerful machine or will anything work for me? I've enclosed a self-addressed stamped envelope for your reply.

Very Truly Yours,
Ronald Reagan
President of the United States

FUJITSU

DX 2300/2400 and DL 3300/3400



DX 2300/2400
- 324 cps draft - 54 cps NLQ
- 80 column or 136 column
- Epson FX-80, IBM ProPrinter and IBM Graphics emulation
- Friction feed and adjustable tractor feed
- Quiet (less than 55dBA)
- Parallel and serial (optional) interface
- Color option available
- MTBF - 6000 power-on hours

Call for Price

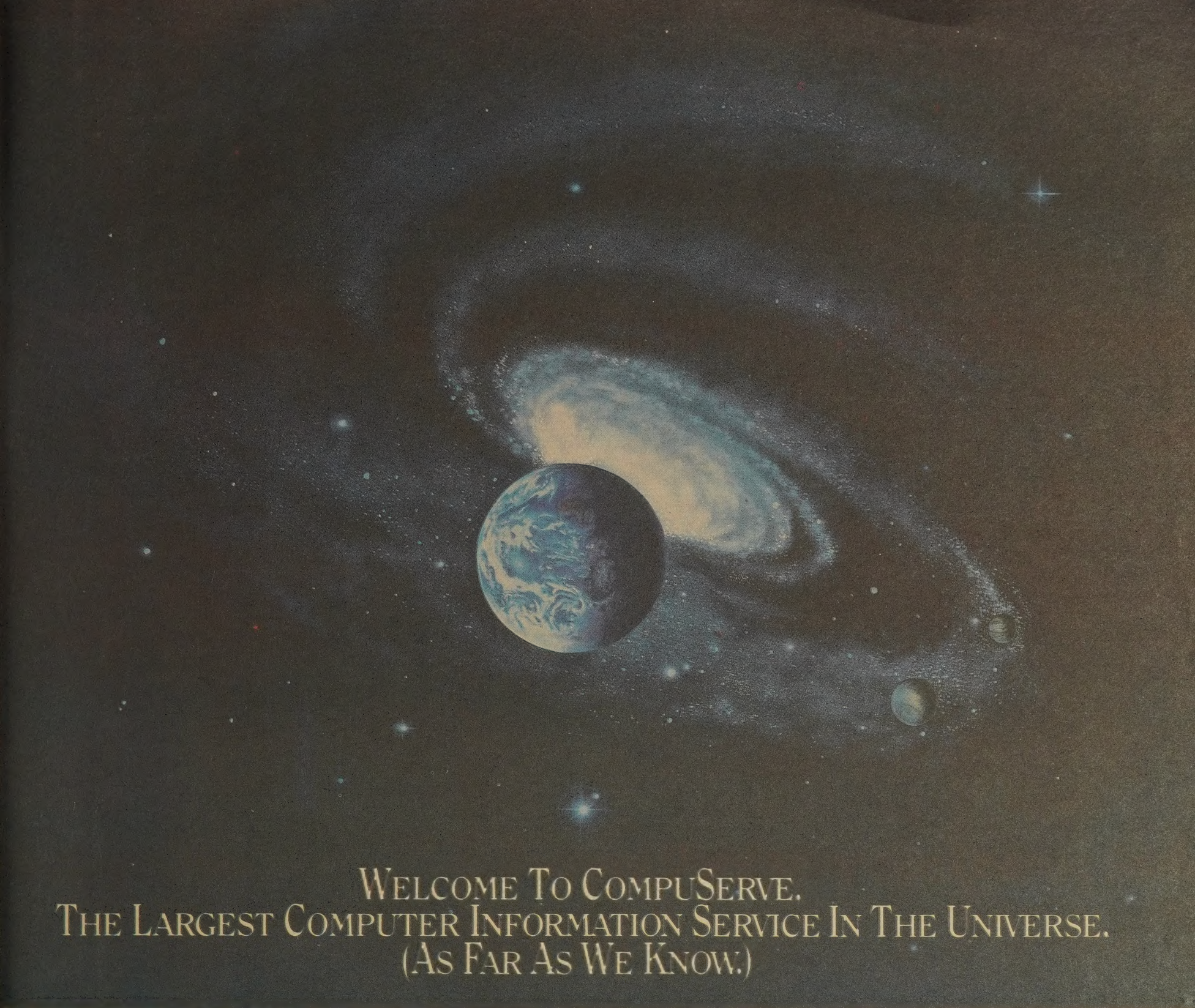
DL 3300/3400
- 24-wire dot matrix
- 240 cps draft - 60 cps letter quality
- MTBF-8000 power-on hours
- IBM ProPrinter, IBM Graphics, Diablo 630 & Epson JX-80 emulation
- Parallel and serial (optional) interface
- Narrow or wide carriage
- Adjustable tractor and friction feed
- Head life 300 million strokes per wire

Call for Price

Cypress Distributing Company®

560 Lincoln Avenue, San Jose, CA 95126, (408) 297-9800
22186 Rim Pointe, El Torro, CA 92630, (714) 770-7244
2670 Truxel Road, Sacramento, CA 95833, (916) 646-1955

Quimax Emerson Century Data Systems Packard Bell Personal Computer Products Panasonic Seikosha C. Itoh Moniterm Star Micronics Mitsubishi Rutishauser Canon



Welcome To CompuServe.
The Largest Computer Information Service In The Universe.
(As Far As We Know.)

More people use CompuServe than any other online computer information service on Earth.

Over 430,000 members access hundreds of information, communications, and entertainment services online.

Thousands with similar interests and special expertise converge regularly and exchange ideas on an ever-expanding list of special-interest Forums.

They have access to a combination of more financial information, a greater variety of shopping services, and deeper research resources than any other online computer service. Anywhere.

Of course, it's conceivable that there's a service like ours somewhere that could give you more for your money. But you may have to travel a few light-years to find it.

Instead, all you have to do is visit your nearest computer dealer today and ask for CompuServe.

CompuServe®

Retail Sales Group, P.O. Box 20212
5000 Arlington Centre Blvd., Columbus, Ohio 43220

800-848-8199

In Ohio and Canada, call 614-457-0802

An H&R Block Company

Efi's Discount Computers
3441 Golden Gate Way
Lafayette, CA 94549
(415) 283-1700

Data Consulting
18 Hector Lane
Novato, CA 94947
(415) 883-2300

Discount Micro World
68 Paul Drive #C
San Rafael, CA 94903
(415) 492-8890

Fry's Electronics
541 Lakeside Drive
Sunnyvale, CA 94086
(408) 733-1771

Software City, Concord
1500 Monument Blvd.
Concord, CA 94520
(415) 676-6662

Mac Orchard
1520-A Walnut Street
Berkeley, CA 94709
(415) 540-6224

Software For Less
950 Taraval
San Francisco, CA 94127
(415) 753-1235

Computown
760 Market Street #219
San Francisco, CA 94102
(415) 956-8696

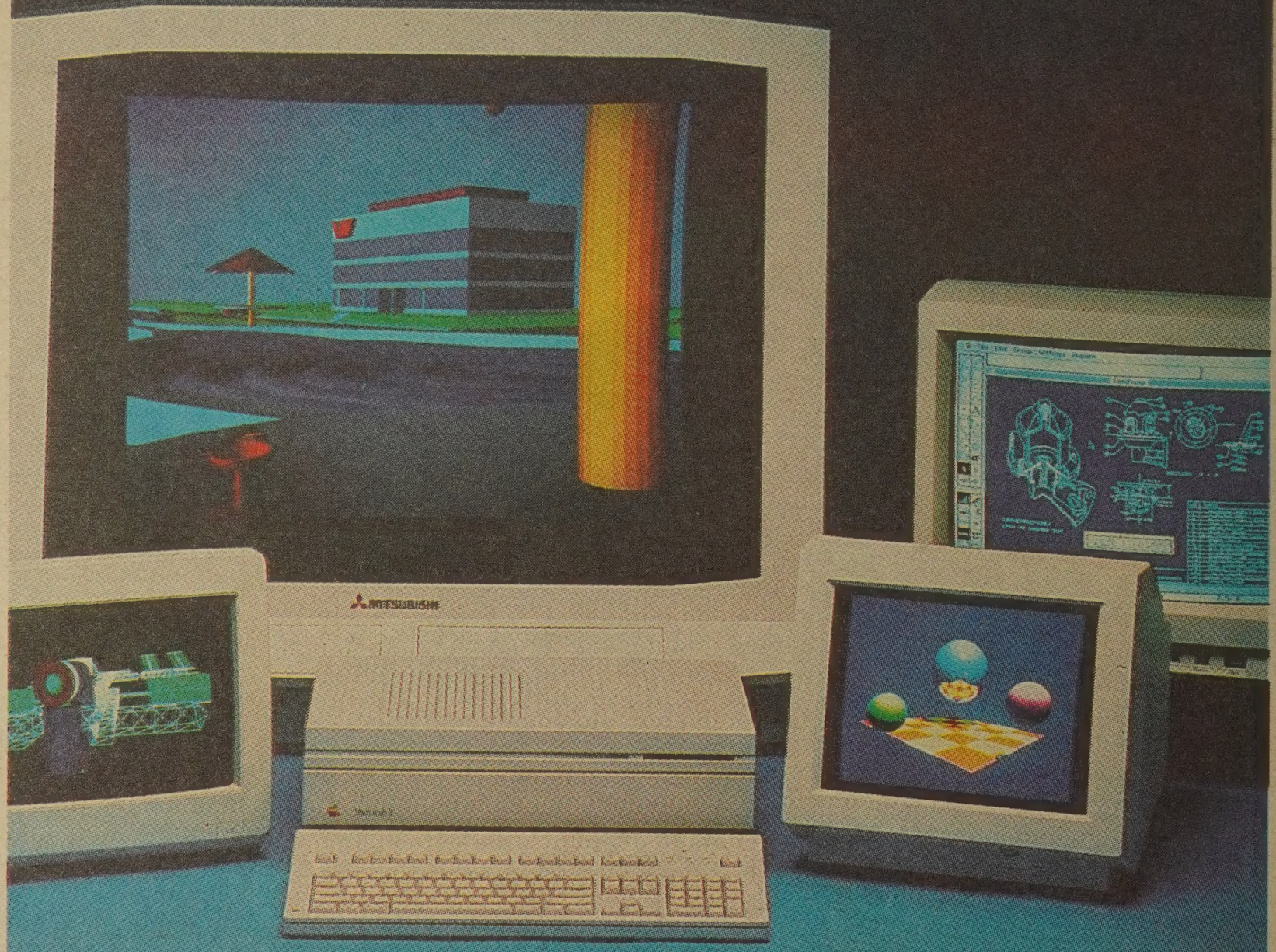
One Stop Computer Shop
1300 E. Main Street #321
Grass Valley, CA 95495
(916) 272-3780

M.A.C.
2156-A University Avenue
Berkeley, CA 94704
(415) 644-0516

Access Computer Technology
3393 El Camino Real
Santa Clara, CA 95051
(408) 247-4444

Western Computer Group
658 Burlway Road
Burlingame, CA 94010
(415) 340-1781

Bushel of Apples



A complete line of 13V" , 15V" , 19V" and 35V" high performance color monitors fully compatible with the Apple® Macintosh™ II is now available from Mitsubishi Electronics and TASK TECHNOLOGY, INC. Whether for desktop or boardroom, TASK has the perfect Mitsubishi monitor for you. Make the move to TASK and Mitsubishi today for all your Macintosh™ II needs.

AUM-1371A Diamond Scan™ - 13V"
C6922AGK - 19V"
FHF3500K - 14V"
XC3710SS - 35V"

MITSUBISHI ELECTRONICS

TASK TECHNOLOGY, INC.
244 Sobrante Way
Sunnyvale, CA 94086
(408) 773-0600
(800) 992-TASK

TASK TECHNOLOGY, INC.